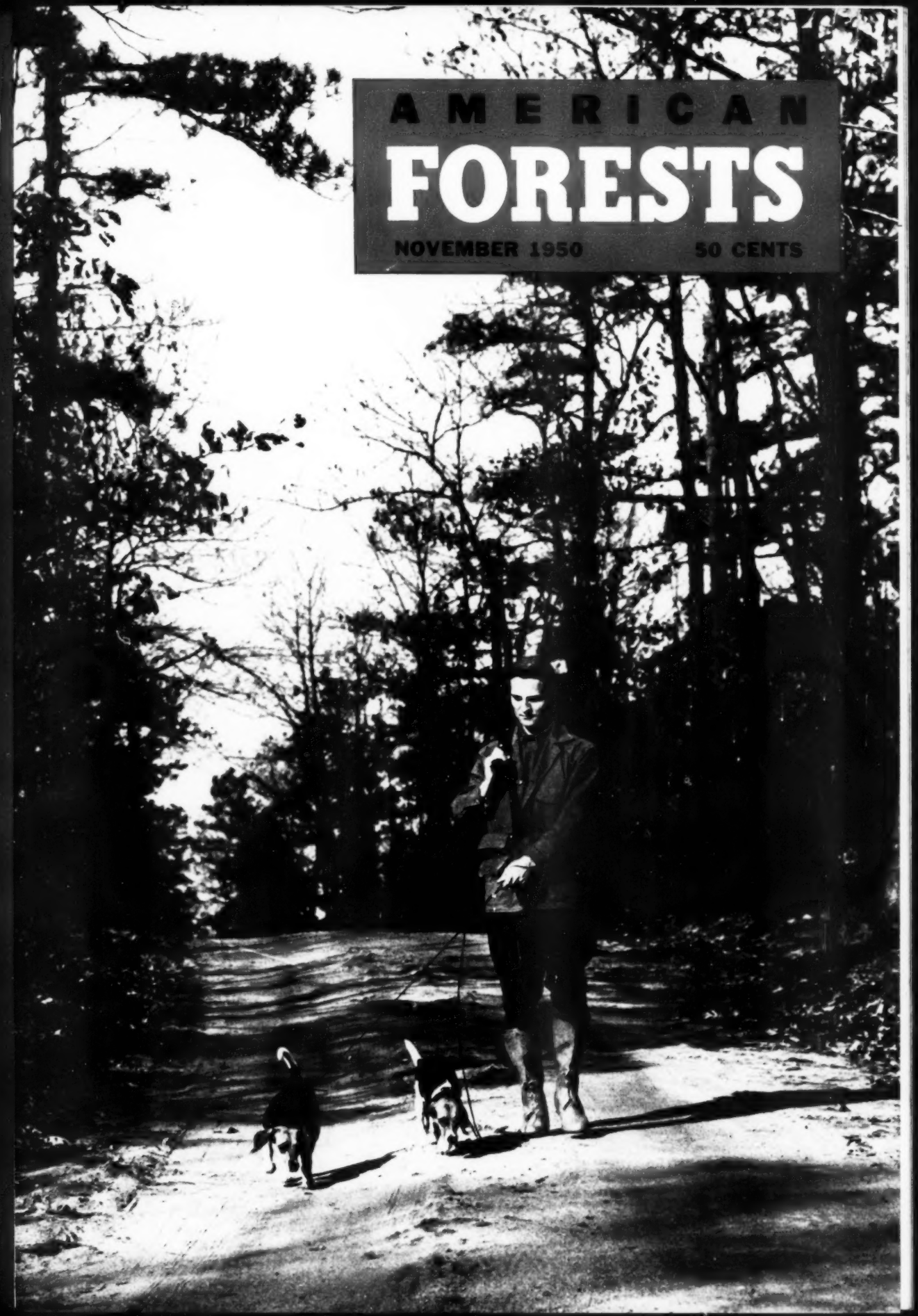
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FORESTS
NOVEMBER 1950
50 CENTS

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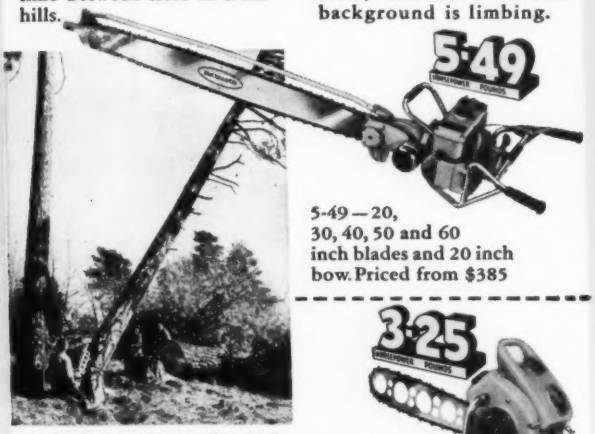
The 5-hp, 49-lb. McCulloch makes quick work of big trees. Its light weight saves time between trees in these hills.

The McCulloch 5-49 is shown here with blade swiveled to bucking position; the 3-25 in the background is limbing.



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NOVEMBER, 1950
VOLUME 56
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American FORESTS

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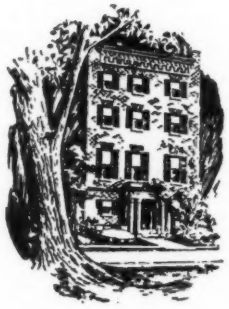


CONTENTS

NEW FORESTS FOR OHIO 6
By Larry Cook

CANADA'S APPROACH TO FORESTRY EDUCATION 9
By Robson Black

THE BOUNTIES OF NATURE 10
By Provost James P. Adams

WISCONSIN WAS WONDERFUL 12

1950 CONSERVATION HONOR ROLL 16

75 YEARS OF FORESTRY PROGRESS 18
From the Federal Viewpoint — By R. E. McArdle
As Industry Sees It — By D. C. Everest
From the State Viewpoint — By J. F. Kaylor

A CURE FOR LITTLELEAF DISEASE? 20
By George H. Hepting and George M. Jemison

FIFTEEN YEARS ON FIFTEEN ACRES 23
By J. A. Cope

WIFE OF A TROPICAL FORESTER 24
By Martha Sey Huntington

ADVENTURING IN TREES AND GRASS — Part V 27
By Henry T. McKnight

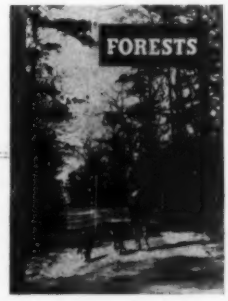
BOOKS 32

THIS MONTH WITH THE AFA 46

EDITORIAL 48

Cover . . . . . .

This is the season when millions of men — and women, too — yield to the urge of the great outdoors. You are really living when, like the young man in this cover photo by Harold M. Lambert Studios of Philadelphia, you can shoulder a gun and strike out with your dogs toward your favorite hunting spot. The beagles pictured here may be a bit young, but they are eager and apparently have sniffed the scent of game. At any rate, they are straining to leave the road and get into the woods. Regardless of game, the untrodden retreats whisper an appeal to freedom and a chance to lose oneself temporarily among the beauties of nature.



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The American Forestry Association, publishers of *American Forests*, is a national organization—independent and non-political in character—for the advancement of intelligent management and use of forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is to create an enlightened public appreciation of these resources and the part they play in the social and economic life of the nation. Created in 1875, it is the oldest national forest conservation organization in America.

75th ANNIVERSARY 1875 1950
THE AMERICAN FORESTRY ASSOCIATION

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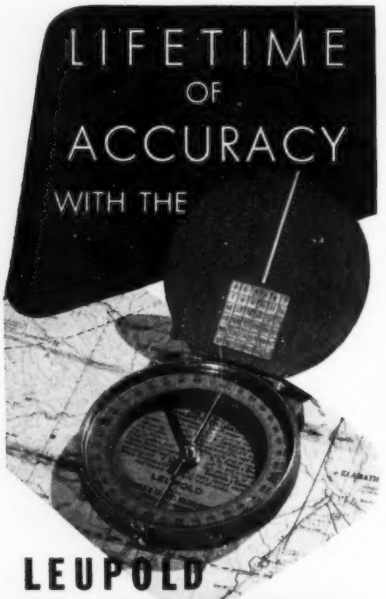

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LETTERS TO THE EDITOR

WVIC Pioneers

I am writing to commend the lead article about the development of the Wisconsin Valley Improvement Company which is excellent so far as it goes. The individuals mentioned did and are continuing to do a splendid piece of work. I gladly add my tribute because of personal acquaintance with them.

But I should like to carry the account back to the beginning:

The pioneers in the creation of the WVIC were Jack O'Day and A. H. Reid of Merrill. O'Day was an old-time lumberman and Reid a lawyer graduate of the University of Wisconsin. Reid drew the charter which has been the basis for the employment of private enterprise with vast benefit to the public during the past 45 years. They were chiefly instrumental in securing legislative approval of the charter at Madison.

My recollection is that this was in 1905. A few years later, Reid became Judge of the 16th Circuit in Northern Wisconsin. He held this postion nearly 30 years and never had an opponent in the non-partisan election for judges under the Wisconsin statutes. During this long term, a larger percentage of his opinions was upheld upon appeal to the Wisconsin Supreme Court than in the case of any other judge in the state. This is evidence of the kind of ability and foresight that went into the drawing of the WVIC charter.

Not long after the organization of the company, the late E. M. Griffith, then state forester, described the undertaking at a meeting of the Society of American Foresters in Washington. This, I suspect, was the first time many foresters heard about it.

Royal S. Kellogg
(AFA member for 50 years)

Bradenton, Florida

Is This Conservation?

I have just returned from a trip to the Olympic Peninsula and was shocked at the conditions found there. In traveling along the highway about the Peninsula we saw large areas empty of everything save the decaying stumps of once immense trees and fireweed. These countless acres are lying idle. There is no natural reproduction and absolutely no attempt has been made by any agency, private or public, to reforest this area. Is this enlightened conservation in our No. 1 forestland area?

Wallace G. Schwass

Chicago, Illinois

Is Soil the Source?

During the past fifty years we have seen disaster striking many of our trees. The first three decades saw the chestnut blight, then for one and a half decades the so-called Dutch elm disease, for the last half decade the oak wilt. In all that time there has not been one single intelligent approach towards prevention of such disease and disaster to the trees.

Science knows full well that there is only one cause of disease of any kind, and that is *malnutrition*. Dr. C. W. Cavanaugh of Cornell University expresses this fact very plainly and clearly when he says: "The fact is, there is only one disease, malnutrition. All ailments and afflictions to which we may fall heir are directly traceable to this one major disease."

It is a fact, little known to the public, but well known to nutritionists, that sickness and disease of every kind, that insanity and even crime can be prevented by proper nutrition. The first authority to clearly demonstrate the close connection between health and proper nutrition was that great British agronomist, the late Sir Albert Howard. In his various books, particularly *Health & The Soil*, he emphasizes over and over again: "Disease and insect pests are the censors, pointing out the plants that are improperly nourished." Plants that are properly nourished are immune to disease and so unattractive to insects that they are never bothered by them, therefore never need any spraying of any kind at any time.

Malnutrition as applied to our livestock and to our human population is mostly a case of being overfed and undernourished. When it comes to our trees, it is most likely the case of just being underfed.

The most serious aspects of such undernoruishment are mineral deficiencies in the soil. The next factor may be lack of organic, humus-building organisms in the soil. The quickest and easiest way of removing mineral deficiencies is the addition of moderate amounts of seaweed to the soil.

Today everybody knows that all antibiotic substances come from the soil through algae, bacteria and fungi of many kinds. All these soil organisms have a brief life cycle and their dead bodies soon become plant food. Many of the fungi, however, live and have their being right on the fine hair roots of plants; as soon as their life cycle is ended, they become absorbed, eaten as it were, by these fine roots, so that they completely enter into the plant body. All the antibiotic substances in the soil, the known as well as the as yet unknown, that are contained in the soil become part of the plant body and so confer upon that plant all the immunity to disease that is found in nature wherever conditions are favorable. Animals eating such healthy plants acquire that same immunity to disease and so do human beings fed by such healthy plants and such healthy livestock. That is the explanation why Indians and Eskimos in the frozen North, living on primitive natural foods in primitive surroundings are so free from malignant diseases like cancer, polio or multiple sclerosis.

To my mind the name antibiotic is not quite appropriate because these substances are not *anti bios* or against life, they are against the enemies of life, they are in sympathy with life. Moreover, they live together in friendly cooperation, in symbiosis. They should be called symbiotics,

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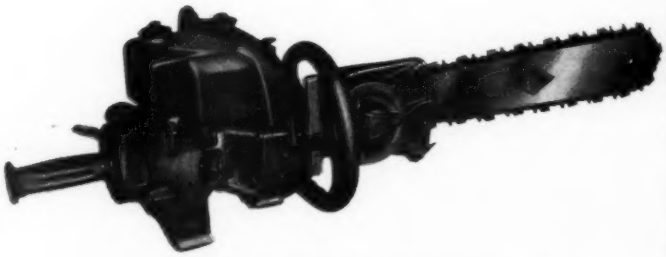
CHAIN SAWS

TITAN AUTOMATIC BLUESTREAK

A two-cylinder, two-cycle, opposed type twelve h.p. motor, designed by Titan for logging use. Compact, vital parts PROTECTED, evenly balanced, NO VIBRATION. Automatic clutch, light weight, quick starting.



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Whether you need a new two-man or one-man chain saw, or any parts, accessories or attachments for your chain saws, Titan will supply exactly the items required from its complete line.

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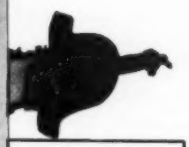

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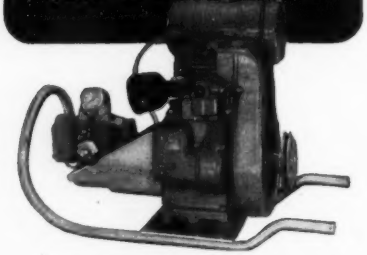

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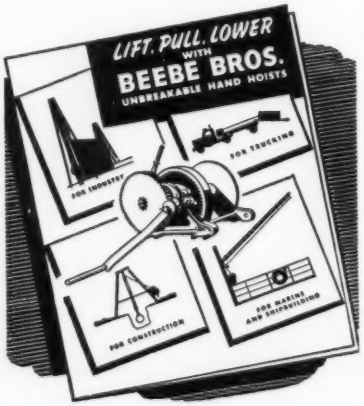

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with all due respect for Dr. Selman A. Waksman. To my mind it is the entire symbiotic complex in the soil that is the real secret of health, of plants, of livestock and of man.

If you provide enough organic food for your trees, ground shells of almonds, peanuts, cocoa beanshells, or of any other nuts, or any other organic waste or manure, preferably well composted, and if you add a reasonable amount of seaweed to such compost, you will soon see your trees recovering from whatever may ail them. You will find that insect damage will decrease some sixty percent the first year, eighty percent the second and 100 percent the third year of such proper feeding. Of course the trees may need additional calcium in the form of lime and ground phosphate rock as well. But there is no doubt if we want healthy trees and other plants, healthy livestock and healthy human beings, we first have to create health in the soil.

Dr. Joseph Schaeffers

Cleveland, Ohio

Dancers—Pro and Con

There is an article in the September issue of *American Forests* magazine which is of vital interest to our dance club. Since we need copies of the article for our dance club history plus publicity, would you please send me nine copies?

Thank you very much. The article was simply splendid, and we were so pleased.

Thora McCready
Dance Instructor
Elmira College

Elmira, New York

Your article with the dance girls—Nuts! Like most everything in Washington. Try and get back to normal.

Oscar Evans, Forester
American Box Corporation

San Francisco, California

Cartoon an Eyecatcher

In passing through your August edition of *American Forests*, I was deeply impressed by the advertisement entitled "Disaster" on page forty-one. The cartoon on the lower right hand side of the page was the one which struck me most outstandingly, and if any posters or copies are available I would sincerely appreciate having one to frame and hang in the clubroom of the Visitacion Valley Rod and Gun Club, of which I am the vice-president. At present we have two of the "Smokey" posters on display, for in addition to our interest in the preservation of game, we also stress the importance of forest fire prevention. I believe the cartoon in reference is the best for stark realism and irony that it has ever been my pleasure to see, and in closing I wish to point out that your pictorial advertisements are the answer to educating the public towards the need for care in the forest lands, and the results of the failure to do so.

Roy R. Moughler, Jr.

San Francisco, California

North Carolina Does Its Share

I have been intending to write you a letter of compliment on your editorial in the June issue entitled, "The Fire Problem Shakes Down." One of those good intentions which got delayed!

I suppose each of us, in reading your editorial, was interested in comparing the results in his own state with those you gave on a nationwide basis. As you likely know, we in North Carolina have been particularly interested in our forest fire law enforcement record over the past 15 years or so. Your information shows that there were less than 7000 prosecutions during 1949; we had 342 of them.

W. K. Beichler
State Forester

Raleigh, North Carolina

ECA Forestation Funds for Italy

Referring to the article, "Italy Needs Trees," by Congressman John McSweeney in the January issue of your magazine and a booklet, "Long-Range Program for Italian Forestry," by Mr. Nelson C. Brown of Syracuse, I wish to enlarge their very fine ideas. Both gentlemen are concerned about reforestation of depleted areas in Italy, which, should this be done in a constructive way, would involve strenuous work and a substantial amount of money, which would have to come out of allotted forestation funds of the ECA for Italy. The recommended noble plans of these gentlemen would benefit future generations in Italy and, of course, the country itself.

The already allotted forestation funds of the ECA for Italy totaled about 16 million dollars, of which half of this amount is spent for forestation in Sicily and central-eastern Italy; however, there the time has advanced to discuss with the ECA in Washington the way in which American money spent in Italy for forestation could achieve the most constructive purpose for the whole Italian population. The question arises: Does Italy need any money for importation of lumber, railroad ties, and pulpwood into Italy or can Italy find all the timber it needs in Italy itself? And here we come to the fact that Italy has vast virgin forest resources which are not even tapped up to now and which could be exploited with the remaining, not used, already allotted funds of the ECA.

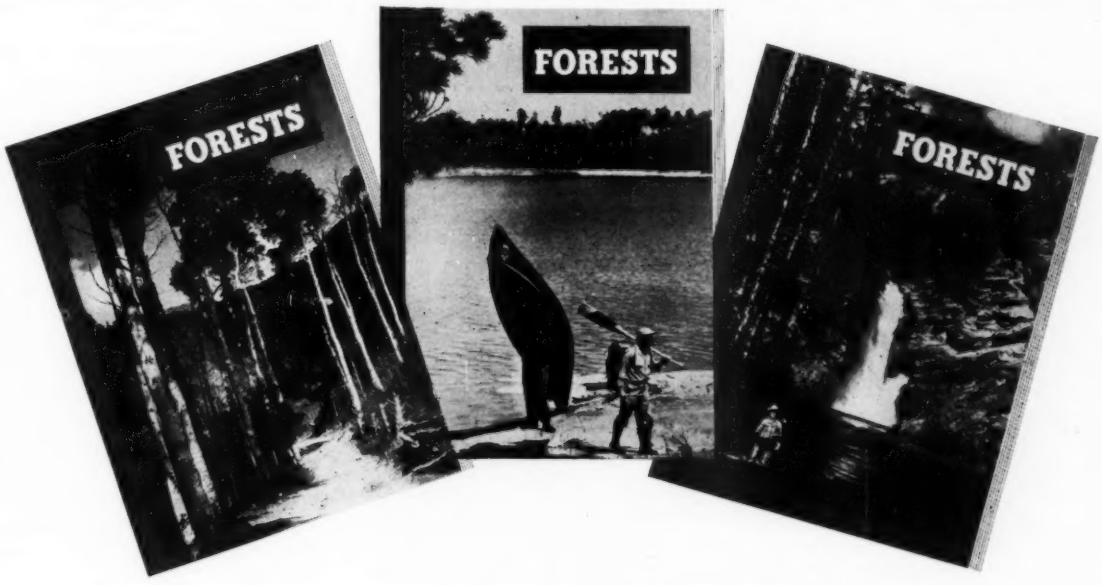
As follows I give you a constructive plan to which every forestry expert, acquainted with Italy, surely will agree:

In Calabria, in the Sila region of southern Italy, there are approximately 300,000 acres very heavily wooded, consisting of the finest commercial pine timber and mixed hardwood and enough pulpwood to feed a pulp mill with a capacity of 200 tons daily for the next fifty years. An extensive survey of the Sila region made recently by the Prince Windischgraetz Forestry Administration showed there are 12,711,865,000 board feet of standing pine and hardwood timber. Up to now this mountainous area was regarded as inaccessible. There are no roads and no ways to get the timber out, so these virgin forests are not even tapped. I am now informed by this administration that their estimate to build roads, to exploit the timber with two to one reforestation, to utilize the abundant water power, to set up a pulp mill and a good sized sawmill and a working manpower of about 2,000 skilled lumberjacks, now idle, would be about six million dollars.

Here could the already allotted and, up to now, still unused forestation funds of the ECA be used in the most strikingly constructive way and there still would remain about two million dollars out of these funds free for their own disposal.

This above mentioned administration has

(*Turn to page* 44)



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Anyone interested in our natural resources will find AMERICAN FORESTS especially helpful during 1951. It will carry information on all important Conservation questions and issues which face our nation today. Order AMERICAN FORESTS for that friend or business associate for whom it is always so difficult to select a gift. Consider also its value to your school, or a library in your vicinity.

Christmas Gift Subscriptions will start with our January issue, but in addition we will send to the recipient a complimentary copy of the December number, together with an appropriate Christmas Gift Card bearing your name as donor—both to reach the recipient in advance of Christmas Day.

We urge your immediate action so that your gift subscriptions can be filled promptly.

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WASHINGTON 6, D. C.

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☐ I enclose $..... ($5 per gift)

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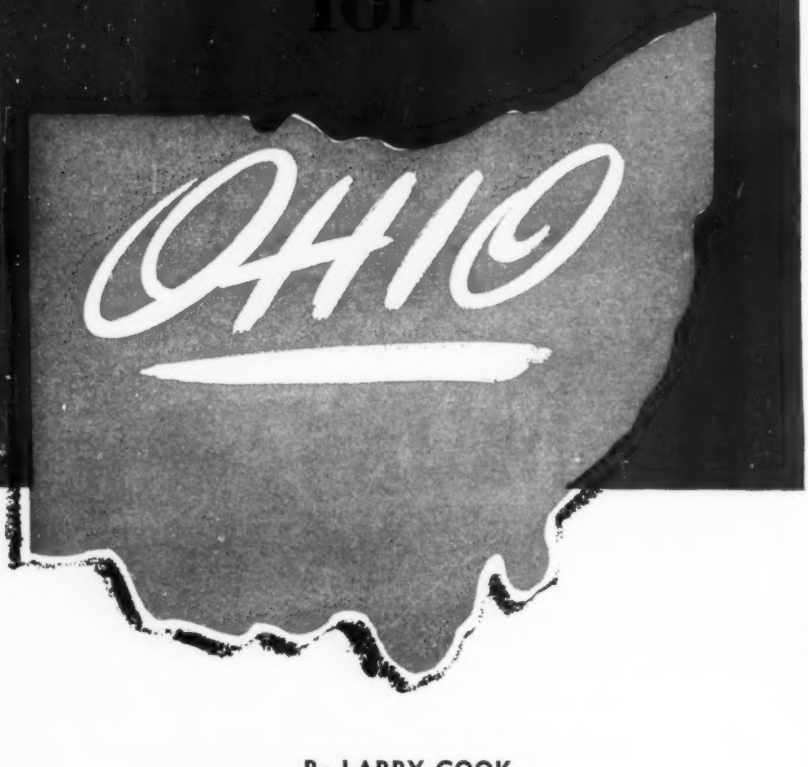
New Forests for OHIO



By LARRY COOK

Nearly six million trees, planted by the Ohio Reclamation Association since 1937, offer new hope for the state's scarred strip mine acres

MILLIONS of healthy and vigorous young trees are growing today on the spoil banks left by strip mining operations in eastern and southeastern Ohio. Legumes and grasses, too, are producing range pasture on thousands of strip bank acres, fruit trees dot other sites—even wheat and row crops have been successful in certain cases. Playing a major role in turning these strip lands—the despair of conservationists a half dozen years ago—into productive uses is the Ohio Reclamation Association and its 92 mining company members.

Organized in 1945, with a membership of 29 mining companies and a staff of one, the Association was an outgrowth of the Ohio Reclamation Committee which had been planting and seeding strip banks on an experimental basis since 1937. Since its organization, the Association has planted 5,779,000 trees and has seeded approximately 4450 acres to forage crops. This includes more than a million trees set out last spring, plus nearly 10,000 vines and shrubs (multiflora rose, elderberry, kudzu, honeysuckle and others)—but it doesn't include this fall's planting.

Indicative of the value of these extensive activities is a tree planting survival rate of 85 percent. Red pines are reproducing naturally on the banks, the only known case in Ohio, and cottonwoods have shown more than an inch of diameter growth in a year's time. In some areas, mature hardwood forests are envisioned within 50 years.

Recreational areas, with forest paths and lakes for fishing, have also been developed. One of the strip mine lakes recently yielded an eight-pound, 13-ounce bass, one of the largest ever caught in Ohio waters.

Besides its actual reclamation work, the Association engages in a number of other activities of an educational nature. For the past four years it has conducted a Plant-A-Tree Arbor Day program, mailing trees for Arbor Day planting to the schools in the mineral area of the state. This year the program was taken over by the Ohio Forestry Association, under Ohio Reclamation sponsorship, and plans are being made to make it statewide.

The Association also sponsors, through the Outdoor Writers of Ohio, annual awards for the best newspaper editorial, column, magazine article, photograph and radio program promoting wise use of Ohio's natural resources. Within the schools, it gives a yearly scholarship so that a teacher can attend the Ohio Conservation Laboratory, and it sponsors an essay contest through the Ohio Forestry Association on "What Are the Benefits of Trees to Ohio?" For the past two years it has made an annual grant to Ohio State University for the conduct of research in wildlife on strip lands in the state.

One of the planting crews in action

Last year the Western Reserve chapter of the Friends of the Land presented the Association with its President's Award for "outstanding contribution to the advancement of

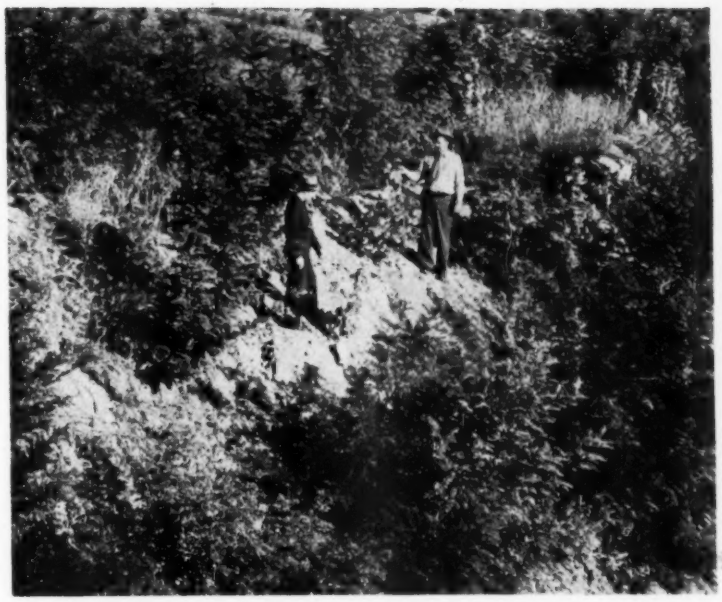
public knowledge of the vital conservation problem."

The vision and leadership which this industry-inspired and supported Association had from the beginning is best illustrated by the set of stated purposes which the original 29 companies drew up to guide the attack on the land problem:

"It shall be the purpose and objective of this Association: (a) to give technical advice to its members in the best utilization of the lands involved in the open-cut or strip method of mining coal and other minerals, and to enter into contracts with its members to revegetate, develop and manage, in accordance with accepted conservation practices, such lands when called upon by the member to do so;

"(b) To promote the best use of all land in Ohio, to advise and encourage private owners of low income, idle or waste lands in the state in the reclamation of these lands to the use for which they are best suited, and to encourage and advise in the development of timber production in Ohio;

"(c) To cooperate with federal, state and private agencies with similar purposes and objectives in the conduct of research, study and experimentation, or in any other activities as may further the objectives of this Association, making available by publication or otherwise, for the benefit of others, the results of these activities."

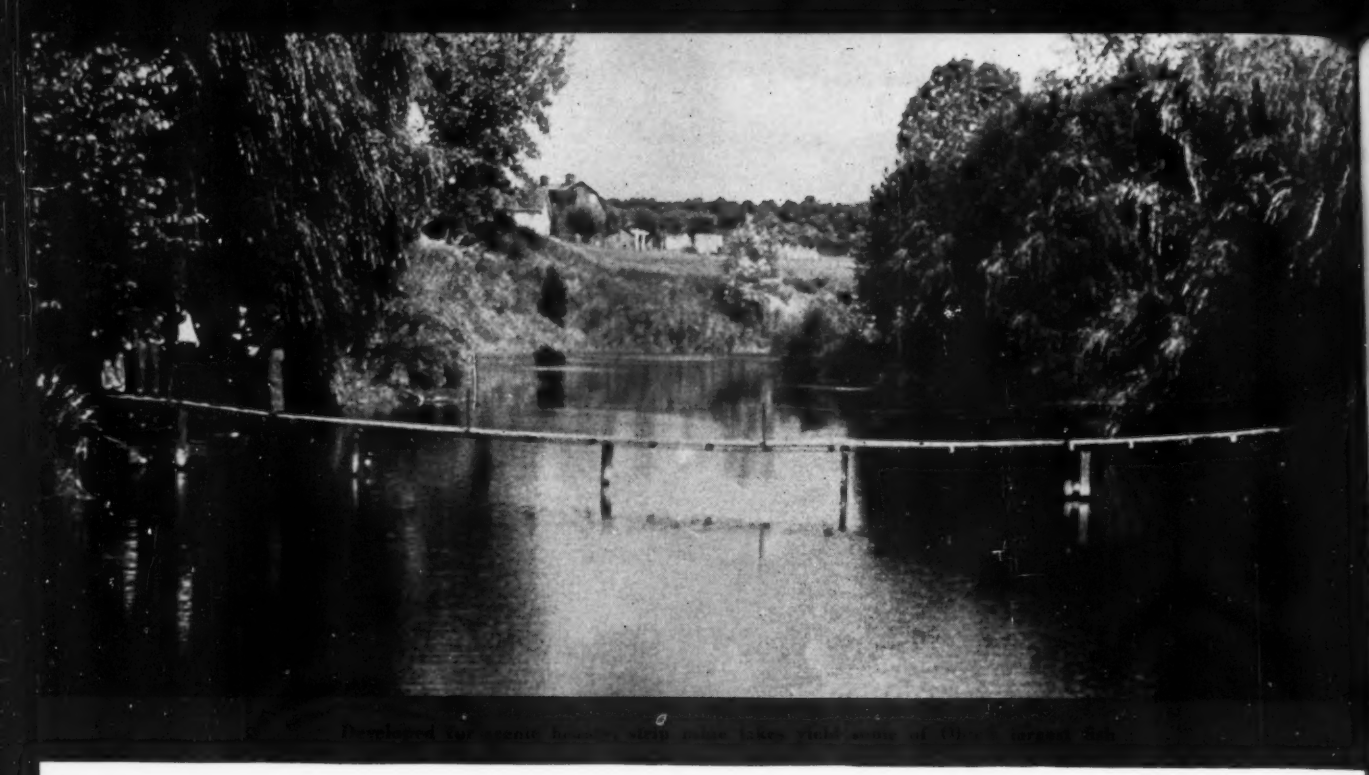


Assistant Director Kinnard and Field Director Crowl beside maple and sycamore in mixed hardwood with black locust as nurse crop

Those early plantings and seedings begun in 1937 brought to light certain peculiarities of the strip lands which distinguished them to a marked degree from other lands. Species which normally would have been expected to fail on the exposed surfaces of the banks actually exceeded their growth records of elsewhere. Other species which apparently should have thrived did not do so.

Moreover, there was a wide variation in materials of the different areas, between banks resulting from the mining of different minerals and different veins of the same mineral. They ranged from toxic to calcareous. Most of them were either loose shale or high in rock content, all were

Besides reclaiming strip banks, the Association replants adjacent worn-out fields



extremely low in nitrogen and the surfaces of all except those where some natural vegetation had started were exposed to extremes of temperature and other effects of the elements.

On the other hand, the banks were loose and aerated. Moisture filtered into them readily and roots could penetrate to great depths. Mineral elements which had long been lost in the original surface were now present. Today at Malabar Farm, Louis Bromfield tears into the surface of his fields to a depth of twenty inches for the same reasons—to break up compaction, obtain moisture infiltration and root penetration and make new mineral elements available to his plants.

It must be remembered that the mining area of the state starts in the terminal moraine and runs down into the hilly, unglaciated section. In spite of the efforts of soil conservation districts, the Ohio Forestry Association, the Ohio Agricultural Experiment Station, the Ohio State University Extension Service, the new Department of Natural Resources and the work of the Muskingum Conservancy District and the Ohio Reclamation Association, there are still more than 1,500,000 acres of waste, idle and submarginal land in this section of the state, all of which could be put to productive use, and most of which is best suited to the growing of timber.

There is, of course, land in this area which has been carefully protected against overcropping, overgrazing, excessive timbering and the destructive processes of erosion. Some land has been rebuilt and some good land has come under the stripping shovel. But at least three fourths of the strip banks offer greater possibilities than the worn-out fields which surround them, and much of the rest either is or should be able in the future to equal results now being attained on adjacent lands.

One of the first moves of the new Association was to enter into cooperative agreement with the Central States Forest Experiment Station of the U. S. Forest Service for research on the strip lands. The Congress had recently appropriated $50,000 for the Station to be used throughout the six central states for this purpose. By supplying land, labor, materials and equipment the Association enabled the Station to stretch the Ohio share of this appropriation.

A series of forest research areas was immediately established on strip banks throughout the entire mining section of the state. The results of this research have served to guide the Association and others in making plantings since then. Numerous publications of findings have been made, the most recent being *Rehabilitation of Lands Stripped for Coal in Ohio* written by G. A. Limstrom and R. W. Merz of the Experiment Station and published by the Association.

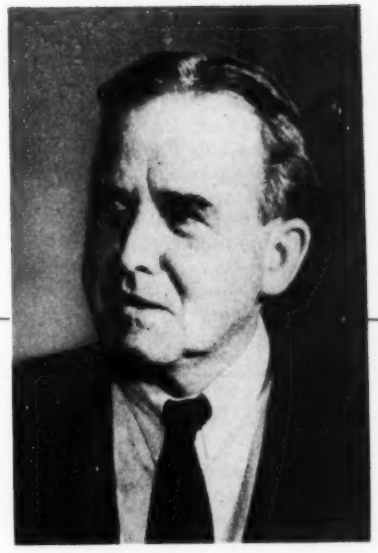
Dr. A. G. Chapman of the Station had previously conducted some research on strip banks in Wayne National Forest in southern Ohio. It was here that he first tried mixing black locust on the banks with other species of hardwoods. Now in forest plantings on the banks, whenever soil tests indicate favorable conditions for hardwoods, initial plantings are made of mixtures of black locust and other hardwood species. The fast growing locusts soon afford protection for the less hardy species and being leguminous, supply them with nitrogen. Through this practice the introductory planting of conifers has been eliminated and the time necessary to obtain mature hardwood forests considerably shortened.

The Ohio Reclamation Association now maintains executive offices in Cleveland and field offices in Cadiz, owns its own trucks and planting equipment and has a practical soil and water testing laboratory. It also has available facilities for cold storage of planting stock. Its staff includes, in addition to the director

(*Turn to page* 31)

Canada's Approach to Forestry Education

A neighboring nation's formula for conservation as reviewed at AFA's annual meeting



By ROBSON BLACK
President Emeritus, Canadian Forestry Association

I AM not here to bring you greetings from the Canadian Forestry Association. I bring you the grateful memories of a middle-aged child to the parent that gave it birth. The parent is 75 years old this year and the offspring reached 50 in January last.

In the years just prior to 1900 The American Forestry Association invited a small group of Canadians to join its councils. Inspiring councils they must have been, for on their return the Canadians unfurled a national banner of conservation and sounded a lone trumpet-call that since has grown to a massed band. But the impetus came from The American Forestry Association, and today it is a privilege for one Canadian, speaking for so many others, to come back to the old homestead and say: "You gave us our start in life; we're doing fine, we don't need any dollars; we do want you to know that one of your boys has been trying to do you credit."

It fell my lot to take hold of the Canadian Forestry Association 35 years ago. In that period we have witnessed the emergence of the United States and Canada from an economy of exploitation to a quickly-maturing economy of resource management. It seems idle to point to the scores of present-day lapses, the lamentable gaps between what the nation deserves and what the nation gets. The solid fact remains that the status of resource-management has traveled a long way, and the body of good sound conviction at this moment is so widely-based, as to assure, in due time, the conquest of remaining territories.

Does it strike a bell in your memories as well, when I say that just 30 years ago in Canada the schoolroom teachings of "unscratched and illimitable" timberlands relieved my own countrymen from any fear that the perishable resources could ever perish. We faced a deep-grounded belief that the forest-growing lands of every sort and location were merely a way station on the route to agriculture.

Public policies on forestry reflected these corrosive mischiefs. Public approval fell upon the man who as people said, "wrestled" with nature, "subdued" the forest, cleared off the country, little suspecting that the lands he cleared were only to be added to the country's liabilities. We bragged of a balance sheet made up of infinite subtractions.

What will never cease to be astonishing to me is that during all those periods of pleading with the North American public to recognize the most elementary principles of forest management, nation after nation in Scandinavia and Europe had already gone far to master the science of permanent timberlands. Hundreds of textbooks, many in English translations were wide open for any man's reading, but we weren't taking any lessons from foreigners.

Contemplating this meeting today, I thought that the most interesting thing I could bring you, as members of an educational body, was the result of our own experiments in the sort of teachings that attract the public toward forestry. For one thing, we long ago gave up inquests and post mortems. They do have their place, but most men, most societies and groups of laymen, have already picked up a general sense, and a melancholy one, of forest history and the question they ask is: Where do we go from here? Every man is concerned about tomorrow, for his children belong to tomorrow and his hopes and his gambles are there, too.

The trouble with inquests in forest welfare is that most of the wicked things of 1885 were not wickedness at the time they were carried out. At least, they did have the consent of public law and public opinion. And to stand aghast and indignant today at what happened sixty years back is to apply our modern educated convictions to a state of affairs not at all surprising in the environment that gave it birth.

We soon discovered that people want the story of what the forest can do in the years ahead. We found, too, that most laymen have enough farming instinct to understand and respect the right use of land. This opened the way to show them that the bulk of our forest area occupies non-arable acres, on which no farmer can earn his salt. And that the stripping by fire or bad cutting of such acres produces a barrens, and nobody

(*Turn to page* 35)

The Bounties of Nature

Our natural resources are not inexhaustible. It is time we pay more attention to their conservation and replenishment

By DR. JAMES P. ADAMS
Provost, University of Michigan

THE economic strength, the comfort and convenience, the health and happiness of our people and the character of our economy today, tomorrow and in the long-run future are dependent in a very important measure upon the bounties of nature, a portion of which we refer to as natural resources.

If these resources are to be wisely utilized, conserved, replenished, and replaced, it must be as a result of conscious concern on the part of our people, responsible interest in policies and plans, and intelligent ordering of our affairs so that these ends are achieved.

Through the educational process—eventually to have its permeating influence at all levels of age and interest in our society—our people can come to understand the importance of this problem and act accordingly.

I am extending my range of vision beyond the forest—whether it's the forest primeval or the reforested tract. I am thinking also of mines and minerals and all the forms of vegetable growth. I am including the wild animal life which abounds on the surface of the land, in the air, and in the water. Nor dare we forget the elements which can be distilled from the atmosphere, from the waters of the sea, and—who knows—perhaps some day from the space beyond the atmospheric envelope of the earth.

In a complex society such as ours, with its great capacity for industrial production, with its processes of exchange, its instrumentalities of financial organization, its agencies of transportation and communication and other services of a thousand kinds and more, with its infinite variety and almost infinitesimal divisions of labor, with its accumulations of material wealth in the form of habitable structures and mechanical equipment, we sometimes lose sight of the most fundamental fact of our material existence. We must at times penetrate beyond the complex array of things which are within our vision on every hand and come face to face with this fact: There are only two primary sources of all the material things we possess. One is human effort. The other is the gift of nature. It doesn't make the slightest bit of difference whether we are thinking about the Empire State Building or the lead pencil in your pocket, a Cadillac motorcar, or a potato masher, corn on the cob, or a cigarette. There are only these two fundamental sources and upon these two depend, in the future as in the present and the past, what we will have to use for the satisfaction of our material wants.

There is a great difference in the balance between these things in different societies. And this is true whether we are thinking of a single society in the different cultural stages of its own development or of several societies coexisting at the present time. In certain economically primitive societies, crude manpower is utilized in vast quantities and it operates directly in conjunction with nature.

One need only picture hosts of Chinese coolies in the rice paddies eking out a bare existence by intensive cultivation, or the Bolivian farmer with a crotched stick plow drawn by man instead of beast, or the peasants of Greece, or the tenant farmers in some parts of our own country. As compared with our standards, prodigious amounts of human toil are matched with nature to achieve a meager result in terms of product. In some of these cases, little progress has been realized in a hundred, yes, perhaps in a thousand years. Manpower is abundant; nature is niggardly; and, therefore, human effort is cheap.

In economically advanced societies, on the other hand, one views a different scene. In some cases, this is due to differences in the temper of the people. It is also due to their state of comprehension. It may be due to the relative size of their natural bounty.

These societies have vast accumulations of instruments of production—themselves basically the products of human effort and of nature. But they also have highly developed skills. Through instruments or production, these skills are multiplied many fold, and high productivity is the result.

High productivity in some cases means rapid exploitation of natural resources. In many cases it means that a much more modest amount of human effort is balanced against a vast reservoir of natural resources. In many cases it means that we are proceeding on the assumption that manpower is scarce or at least that human effort is expensive and that nature's gifts are cheap.

By and large, economic progress is not to be measured by the sum total of what we produce for consumption and use but by our *productivity*, i.e., by what we produce in proportion to the human effort expended in producing it. Therefore, the more advanced economically a society becomes, the more importance it attaches to human effort and, by the same token, the less importance, relatively, it attaches to a given unit of natural resources.

Using any general standard of value you may choose, it is clear that an hour of manual labor or any unit of skilled human effort is rated higher today in comparison with a ton of coal, a thousand feet of lumber, a bushel of wheat, a hundred weight of fish, a quarter carat diamond, a unit

of water power, than was the case when we were less highly developed one hundred or two hundred years ago. This is economic progress. You will note that, this being a human-oriented world, we measure progress in relationship to the amount of nature that can be put at the disposal of man, not the amount of manpower that can be put at the disposal of nature.

All of this means that the more advanced we become economically, the more we regard man and manpower as precious, the more we regard nature as cheap and expendable. This is exactly what has been happening in our society.

But natural resources, the bounties of nature, are not inexhaustible and, if we can bring ourselves to a place where we think of the future, as well as the present—of one hundred, two hundred, three hundred years or more in the future as well as tomorrow and the next day—we cannot escape a lively concern. We all know how the copper mines in Northern Michigan have been exhausted. We know that the high grade iron ore of the Messabi Range will some day be depleted. We are told that we have coal reserves amounting to some three trillion tons; that we have proved petroleum reserves amounting to some twenty-five billion barrels; and that new petroleum reserves are being discovered everywhere and it is anticipated that we will find about fifty billion barrels more.

These are astronomical figures, but they are finite. I need not call attention to the exhaustion of certain kinds of game and of some of our fisheries and to our experience with the depletion of the soils in some parts of our own country. Volumes could be written on this subject.

When we are concerning ourselves with the supply of iron ore, or coal, or oil, or salt, we are dealing with a stockpile, so to speak, which, keeping in mind the prospective limits of our capacity to draw upon it, appears to be, for practical purposes, inexhaustible. Our ultimate recourse, in these cases, must be, presumably, the search for new deposits and for substitutes and, in the meantime, the elimination of wasteful consumption.

We shall probably harness the power of the atom—but even here we may be limited ultimately by the availability of fissionable uranium. We may find it possible to capture and store and parcel out for use the heat of the sun, the force of the tides, the energy of air currents, the heat at the earth's center, the vegetation in the sea, etc. No one dares in these days in which we live to make negative generalizations regarding anything. Some of these suggestions are not as fantastic as they would have appeared to be in 1900 or in 1850. But they are today the potential sources of substitution or replacement for the bounties of nature we now possess.

This group of natural resources to which I have been referring represents the limited deposits of nature or at least natural resources which are the results of a long-time natural cycle—perhaps in terms of thousands or millions of years. There are others which are the fruits of short-run cycles—an annual season in the case of wheat, a life span of a few years in the case of game and fish, a generation in the case of a tree.

The approach to this problem in these cases involves not alone a wise policy of consumption and use but effective provisions for a regular continuity of seedtime and harvest. And this means perhaps not merely a maintenance of present rates of production but an increase in that production because of the demands of increased population and higher standards of consumption.

Concern is already being expressed in some quarters, as you know, over the prospect of undue pressure of population upon food supply—if we consider the planet as a whole. And we are living in a day and age in which our enlightenment makes it inconceivable that we should depend upon the natural checks of wars and famine and disease to redress the balance between produce and people.

All of this emphasizes that we must realize far more than ever the importance of our natural resources. We can no longer take nature and nature's bounty for granted. The geographical frontier has been receding. Intensive cultivation is required. Conservation is necessary. Search for natural substitutes is essential. Improved productivity is imperative.

This is a relatively new economic and social concept when viewed in relationship to the over-all needs of society as a whole—especially in a society which has been reasonably well blessed with natural resources. The farmer, to be sure, has realized that if he could improve the fertility of the soil, he could enlarge the rewards of his labor. But he has conceived of this result in terms of his own economy. He has not projected it in terms of our whole society or the habitable globe.

Generally speaking, however, we have not been, as a people, conservation minded. Our resources—at least some of them—have been so abundant that we have presumed that God would continue to provide for untold generations in the future. In some respects we have been prodigal sons.

We have devoted much of our human ingenuity to the multiplication of the skills of men and the productivity of human effort. We must begin to pay more attention to the inventories of our natural resources, to their conservation, to their replenishment, to the search for substitutes, to the measurement of future need. And we must continue to search for ways and means by which sunshine and rain, the nitrogen and oxygen of the air, and the substance of the soil itself will continue to work the wonders of nature for the benefit of man.

I am simply calling attention to the fact that we must no longer just take nature for granted. We must become more conscious, as a people, of the full extent of her bounty and appreciate more and more how large a part she has had in the development of our economy, in the achievements of our comforts and conveniences, and in the cultivation of the health and happiness of our people.

It is a matter of record that Dr. James P. Adams as provost of the University of Michigan has exhibited exceptional talent in cementing a unity of purpose and an understanding relationship among the various classes and groups with which he works. He has ever been ready and willing to give due credit for a job well done, as was evidenced by the fine tribute paid Dean Samuel T. Dana of Michigan's School of Natural Resources as a foreword to this speech at The American Forestry Association's 75th anniversary banquet in October.

Buses assembled at Trees for Tomorrow Camp to begin tours

Wisconsin was Wonderful!

Photos by Jim Freiburg

Everybody enjoyed field lunches prepared by Joe Coey, lower left

Chief Evergreen Tree shows boy art of bow and arrow

FROM 28 states, Canada, and the District of Columbia, members and delegates of The American Forestry Association and of The Canadian Forestry Association gathered at Eagle River, Wisconsin, October 9, 10 and 11 to take part in a guided conservation tour, the details of which will be forced on friends at home for years to come. Wisconsin was simply wonderful!

Warmed by three beautiful days of glorious Indian summer (as advertised), and with rich hues of autumn foliage a part of the setting wherever they looked, visitors were particularly receptive to view splendid resource management progress in the picturesque Land O' Lakes' second growth forest region. The value and enjoyment of the tours was enhanced immeasurably by careful planning and attention to every detail which would increase the knowledge or comfort of the visitors.

Among the 472 registrants were AFA members from California to Florda and from New England to the Pacific Northwest. There was Miss Bogardus Brodt, 74-year-old life member from Berkeley, California, and there were teen-age forestry students from the midwest. There were 85 of the latter representing six midwestern colleges—Purdue, Michigan, Michigan State, Minnesota, Iowa State and Michigan College of Mining and Technology. There was even an Indian, Chief Evergreen Tree, originally from the Pueblo tribe of New Mexico and now making his home in Wisconsin's Dells. He stayed over for a bit of bow-and-arrow deer hunting.

Setting the stage for the three-day meeting was a morning program in which three speakers summed up the over-all progress made in forestry during the past 75 years. R. E. McArdle, assistant chief of the U. S. Forest Service, gave the federal viewpoint, D. C. Everest of the Marathon Corporation, the industrial slant, and J. F. Kaylor, Maryland state forester, spoke for the Association of State Foresters.

Only other formal speeches were made at the annual banquet, held the evening of October 10 in the Eagle River grade school. Dr. James P. Adams of the University of Michigan delivered the major address on "The Bounties of Nature," and Robson Black, president emeritus of The Canadian Forestry Association, spoke on "Canada's Approach to Forestry Education." In the absence of AFA President A. C. Spurr, Dean Samuel T. Dana of the University of Michigan's School of Natural Resources, and an Association vice-president, presented the annual Conservation Awards. Ernest Draheim of Rhinelander, Wisconsin, was the capable and entertaining toastmaster.

For the most efficiently staged meeting in AFA annals—or anybody else's annals — members may salaam in the direction of Folke Becker, president of Rhinelander Paper Company and of Trees for Tomorrow. As general chairman, he was capably assisted by dynamic M. N. (Mully) Taylor, D. C. Everest of Marathon Corporation, Vico Isola of the U. S. Forest Service, and Ernest Swift of Wisconsin's Conservation Department. If this group plans a trip to Mars, AFA members will flock to sign up.

A fleet of 16 streamlined buses, plus another for Purdue University students, transported members to the various examples of natural resources at work, which included a cross section of soil, water, forests and wildlife management in a pattern of sound land use. In each of the buses, which visitors boarded each day at the Trees for Tomorrow Camp on the edge of Eagle River, was a thoroughly qualified tour guide to describe points of interest. Visitors were also furnished tour guide booklets.

Nearly three-score activities were pointed out to tour participants during the three days. The first afternoon provided a view of one of Wisconsin's 247 forests managed by school students, the Nicolet National Forest, Gagen Forest Management Unit, experimental operation of the Consolidated Water Power and Paper Company, plantations, deer exclosures and the Argonne Farm Forestry Forty which demonstrates how a northern Wisconsin woodlot can provide a continual annual income to the farmer.

More school forests, plantations,

Visitors receive directions at registration booth

The B. F. Williamsons of Florida (bibs) inspect barbecue

Boy Scout canoe bases, resort areas and the Otter Rapids hydro electric power plant were visited the second day, with the highlight being a noontime display of fire fighting equipment near the shore of Trout Lake. Included in this highly instructive and realistic demonstration was the arrival of a U. S. Forest Service fire fighting plane, the Norseman, from the Superior National Forest. Its crew demonstrated how to put out a fire set near the shore. The State Conservation Department showed how fighters take advantage of the many lakes to fight fires with latest mechanical equipment.

Costumed girls served Paul Bunyan portions at barbecue

J. R. Weston (Miss.), Miss Bogardus Brodt (Calif.), Mrs. H. E. Wood (Fla.), Miss Mildred Roberts (Calif.) on tour

Joe Kaylor, Dr. P. A. Herbert (Michigan State), E. F. Vandrell (Milwaukee) and Walter Meyer (Yale) line up for burgoo soup

The morning of the third day was devoted to showing how industry stores and makes maximum use of water at the Rainbow Flowage and Weather Station on the Wisconsin River, and in the afternoon the National Container Corporation demonstrated its new portable wood chipper and hydraulic loader. Also on the return trip to Eagle River, visitors got a view of the Rhinelander Paper Company and a unique logging museum. Evident throughout the tours was a spirit of close cooperation between industrial, state and federal agencies. This teamwork is the key to the success of Wisconsin's conservation program.

A never-to-be-forgotten highlight was the mammoth Paul Bunyan Barbecue, held the first evening at the Eagle River Stadium, a domed enclosure normally used for ice hockey. Supervised by Mrs. Anna Friedman, a resort owner, and son, Morris, a caterer for a large Chicago hotel, the

Purdue forestry students enjoy tour

Landing of the Norseman signaled fire fighting demonstration

fires were lighted in the pits three days previous to the barbecue. The meat, 750 pounds of beef and 250 pounds of venison, was put on the spit a day ahead of time.

Other foodstuffs prepared for the affair were 300 pounds of potatoes, 150 pounds of cabbage, 180 pounds of cored apples for deep dish apple pies, 80 gallons of coffee and untold gallons of burgoo, the tasty soup which simmered over open fires in huge iron kettles.

Young women prettily costumed in colonial dresses, aprons and caps, served heaping plates of the barbecue and trimmings to the visitors who had been greeted at the door by a miss who tied souvenir Paul Bunyan bibs around their necks. A stage in the center of the arena was used throughout the festivities for music and entertainment. Nearly 700 AFA members and townspeople packed the arena for this affair.

The field lunches supervised by Joe Coey, Trees for Tomorrow Camp cook, and his staff, while not so colorful, were also expertly prepared with an eye to satisfying the ravenous appetites whetted by the clean Wisconsin air.

Many members found time to inspect the Trees for Tomorraw Camp headquarters, a project sponsored by Wisconsin forest industries as a pilot educational activity to which Wisconsin school and civic groups are invited for indoctrination in the kind of conservation practices gaining favor throughout the nation. On the grounds is a forest products exhibit museum, an assembly room for movies and lectures, barracks for sleeping and a dining hall.

Portable wood chipper, hydraulic loader demonstration held attention

AFPI Photo by Jack Rottler

Displaying the plaques awarded by the AFA for distinguished service to conservation are (l. to r.): Wakelin McNeel, Madison, Wisconsin; Dr. Hugh H. Bennett, Washington, D. C.; Harry E. Wood, Tallahassee, Florida; Col. William B. Greeley, Seattle, Washington, and Charles F. Evans, Atlanta, Georgia. Dean Samuel T. Dana (extreme right) of the University of Michigan presented the awards and in turn received a surprise plaque from Lake States industrialists

1950 Conservation Honor Roll

Nation's outstanding conservationists awarded AFA plaques

PAUSING in the course of the 75th anniversary meeting at Eagle River, Wisconsin, members of The American Forestry Association on October 10 paid tribute to 1950's five recipients of coveted walnut plaques in recognition of outstanding service to conservation.

Singled out from separate fields of endeavor for their noteworthy contributions to conservation and on hand to receive their awards in person were J. N. (Ding) Darling, nationally renowned cartoonist (now retired) from Des Moines, Iowa; Charles F. Evans of Atlanta, Georgia, recently retired from the U. S. Forest Service and currently president of the Society of American Foresters; William B. Greeley, nationally prominent forester from Seattle, Washington; Wakelin McNeel, the "Ranger Mac" of 17 years in conservation radio in Madison, Wisconsin; and Harry E. Wood, state supervisor of agricultural education in Florida.

Also present to receive a plaque was Dr. Hugh Hammond Bennett, chief of the Soil Conservation Service in the U. S. Department of Agriculture. Dr. Bennett was a 1949 winner of the AFA Conservation Award, but because of a trip to Europe was unable to attend last year's annual meeting presentation at Akron, Ohio.

Life membership certificates in The American Forestry Association accompanied the awarding of the plaques which bear the AFA's bronze shield and are inscribed with the words: "In recognition of outstanding service in the conservation of American resources of land, water and forests." Making the presentations in the absence of the Association's president, A. C. Spurr, was Dean Samuel T. Dana of the University of Michigan's School of Natural Resources, also an Association vice-president.

Of Ding Darling, Dean Dana said, "The signature of Ding is his trademark on cartoons which millions have seen—powerful messages in conservation and other subjects of the day. A cartoonist from the time of his graduation from Beloit College in 1900, Ding has also served conservation as chief of the U. S. Biological Survey. He helped to form the National Wildlife Federation and was its first president." His work in Iowa's state conservation program was also recognized, and mention was made of the numerous awards, degrees and citations previously conferred. He was made an honorary life member of the Association in 1948 as a highlight of the 67th annual meeting held in Chattanooga.

Charles F. Evans was particularly cited for his long and enviable record as a public servant which embraced 38 years of forestry between 1912 and 1950. Until his retirement in

1949, he had been serving as assistant regional forester for the South and was in charge of cooperative forestry. "With all his knowledge of forestry, his energy and conservative sound judgment, perhaps his greatest contribution has been his guidance to others," said Dean Dana. While with the U. S. Forest Service, he enjoyed the confidence and respect of southern state foresters, men in industry and other walks of life, and he was signally honored by the forestry profession of the nation through his election to the presidency of the Society of American Foresters.

Despite an understandable reluctance in view of his position as a member of its board of directors, it was impossible for the AFA to forego any longer the bestowal of a Conservation Award on Colonel William B. Greeley. In the field of industry he has no peer, and in his 46 years as a forester he has earned both a national and international reputation.

Pointing out that "He is today the forester exercising the greatest influence on private forestry policies," Dean Dana reminded that Colonel Greeley had first gained prominence by rising to the height of his profession as chief of the U. S. Forest Service, a position he held from 1920 until 1928. His 18 years of service as manager of the West Coast Lumbermen's Association and his four years as chairman of the board of American Forest Products Industries were also cited.

The selection of Wakelin McNeel as a 1950 award winner was based chiefly on his pioneering and development of an outstanding farm and forestry radio program which he conducted over Wisconsin airwaves for 17 years. In 1942 this program won the George Peabody Award as the best educational program of the year. State 4-H Club leader from 1944 until his retirement this spring, McNeel was a leading force in the development of Wisconsin's 235 school forests and of the junior forest rangers. The president of the University of Wisconsin told McNeel recently, "Perhaps no one activity or enterprise has surpassed your broadcasts in influencing the conservation movement of the future."

In the field of youth education, Harry E. Wood, state supervisor of agricultural education in Florida, was cited as having "exemplified an approach to forest and soil conservation far beyond mere teaching." Under his guidance, action and achievements have become by-words. The list of activities in which his Florida Future Farmers of America youths have engaged include establishing youth forests, plantations, fireline construction, forest improvement cuttings, fence post treating, terracing and a host of other land projects.

One of Wood's strongest convictions is that forestry should be an integral part of the farm enterprise, and his approach to this problem has been eulogized as a sound solution toward better management of small woodlands. It is likely many will recall having seen the forestry accomplishments of Wood's boys interwoven in the comic strip, "Smilin' Jack," within the past year. Their exploits have also been featured on nationwide radio programs.

Presentation of annual conservation awards is The American Forestry Association's method of acclaiming the accomplishments of those individuals whose contributions to the progress of conservation have met with success over and above that which would be expected in their separate fields of endeavor.

Establishments of the awards as an annual feature stemmed from the Association's 67th annual meeting at Chattanooga, Tennessee in October of 1948. At that time Senator Arthur Capper of Kansas was tendered a similar plaque in recognition of his legislative contributions to conservation. He was also given an honorary life membership in the AFA, as were Ding Darling, Henry S. Graves of New Haven, Connecticut, Tom Wallace of Louisville, Kentucky, and Robert B. Goodman of Marinette, Wisconsin, each of whom excelled in his separate endeavors.

Last year the awards took their present form and significance. Honored at that time were Bryce C. Browning, secretary-treasurer of Ohio's Muskingum Watershed Conservancy District; M. D. Mobley, Atlanta, Georgia educator; D. C. Everest, Rothschild, Wisconsin industrialist; Thomas J. Page, New York City radio agricultural director; Walter R. Humphrey, Forth Worth, Texas editor; and Hugh Hammond Bennett, Soil Conservation Service chief who received his plaque with this year's recipients.

J. N. (Ding) Darling (left), famous as a conservation cartoonist for 50 years, had to leave before the banquet, so Dean Dana presented his plaque a bit early

75 Years of

FROM THE FEDERAL VIEWPOINT

By R. E. McArdle

Assistant Chief, U. S. Forest Service

IN 1875 we probably had about as much forest land as we have today. But we had better forests—more total volume, higher proportion of good species, less cut-over and burned-over land, less area in need of planting, a whole lot less forest deterioration. There is little point in comparing conditions then and now. The common sense question is: What have we done to repair the damage and to prevent the same thing from happening again?

We have made a lot of headway in controlling forest fires and have begun to protect our remaining forest resource from attacks by insects and disease. We have reforested some of the denuded areas. A tremendous amount of natural reproduction, especially in the South and Far West, has come in largely as a result of better fire protection. We have begun to harvest our timber crop in ways that consciously are aimed at maintaining forest productivity. More complete utilization is being made of the trees that are cut. Research is under way to find out how to do these things better. Large areas, especially those with critical watershed values, have been set aside to be held in public ownership.

In brief, we are making conscious efforts toward obtaining and maintaining a forest resource adequate to meet our needs for wood, watershed protection, recreation and all other products and services of forest lands.

I don't want to get all dewey-eyed about the progress we've made. Neither do I want to twist my fingers out of joint wringing my hands over not enough progress. Progress comes in many shapes and sizes. Nearly half of our 75-year period passed before there were substantial beginnings in forest conservation. It may be that in the woods more has happened in the last five to ten years than in the 25-year period immediately preceding.

If what we have accomplished must be spread out over a 75-year period it won't indicate much more than a slow crawl toward better forest resources. But if there has been recent and appreciable step-up in our effort toward building an adequate forest resource, it is important to recognize that accelerated progress. If there has been recent and appreciable step-up in drain on the forest resource it is important to recognize that, too.

In my opinion, the first really significant development was in public forestry—our present systems of national forests, national parks, state forests and parks have helped in many, many ways to promote forest conservation. Public forestry helped

(*Turn to page* 37)

AS INDUSTRY SEES IT

By D.

Board Chair

REVIEWING the whole forestry situation over a period of 75 years, I think we may have had too much of two kinds of "isms"—idealism and realism. The idealist believed in no cutting of trees; the realist believed in the cutting of trees but, in former times, neglected to reseed or replant the crop he had cut.

It has always seemed that both sides were lacking in a complete understanding of what forestry, as we know it, was really about. Except for trees which will serve a better purpose for mankind than through industrial use, I am convinced that all other trees should be looked upon as an agricultural crop. Trees reach their highest point of usability at maturity and should then be cut and the land reseeded or replanted. This rotation should be in accordance with plans laid down by scientists in soils and forestry.

All my life I have heard criticism of the people who cut these great forests. I have heard sarcastic remarks

Forestry Progress

ES IT

By D.
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Chairm
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relative to round forties and wasteful practices. But only in recent years have I had opportunity to sit down and really think about whether or not all this criticism was justified. I have studied particularly the history of the timber industry in Wisconsin.

I have come to the conclusion that critics view the whole performance in the light of too many present day facilities and economic conditions which were not in existence at the time the timber was cut. Of course, there were a few questionable characters in every timber area, as there are in all groups of people, who did not play the game as the majority of people would approve.

As a general proposition, however, it was the economics of the day which controlled the actions of the pioneers who engaged in either farming or lumbering. Cleared land was necessary for farming, and if there was no market for the timber beyond that required for their own housing and farm buildings, they had to cut and burn it. In lumbering, economic conditions were uppermost in the minds of the operators and transportation was largely the controlling factor, plus the rigid specifications as to quality on the part of the consumer.

When you think of driving logs to a sawmill somewhere down the Wisconsin River, and the sawmiller in turn sawing the logs and rafting his lumber down the Wisconsin and Mississippi rivers as far south as St. Louis to compete in a market where the purchasers knew the value of quality in lumber, you can readily realize that it would have been commercial suicide to attempt to harvest and sell anything but the best the

(*Turn to page* 42)

FROM THE STATE VIEWPOINT

By J. F. Kaylor
State Forester of Maryland

TODAY, all 48 states have some form of forestry department. It has been said that in the past 60 years there have been well over 150 types of organizations for state forestry. This can be readily seen from the diversity of titles given to the various forestry boards or commissions and the state foresters.

State forestry organizations may be classified under three broad categories: forestry combined with other relative activities, such as conservation departments, or forestry as a separate administrative unit, or forestry administrative setups subordinate to other state activities. In the past, regional rivalries, sectional prejudices, personal policies, professional jealousies, the changing attitude of the public, and fluctuation in appropriations have been strong factors in fashioning the administrative pattern of state forestry. At the same time, we must keep in mind that there is no single, standard, ideal state forestry organization.

Concerning the first decade of the 20th century, the Chief of the U. S. Forest Service has said that "More permanent progress was made in the formation of state forestry departments than in any other like period." During this ten-year period, sixteen new state forestry agencies were established, bringing the total to 25 states which had taken steps toward some form of forestry activity. Louisiana was the first southern state to make a legal provision for forestry. This act of 1904 provided for a department of forestry, fire prevention laws, a fire warden system, and a reforestation program. Two years later, about the time of the San Francisco earthquake, Maryland employed a technically trained man known as a state forester.

After this surge in forestry by the states, the federal government began to pass some very important legislation introducing the principle of federal cooperation and financial aid. With passage of the Weeks Law, in 1911, $200,000, which seems like such a paltry sum nowadays, was appropriated, to be matched by the cooperating states, for the protection from fire of forested watersheds of navigable streams. This was at least a beginning in nationwide fire protection. Forestry extension work was given a boost by the enactment of the Smith-Lever Law in 1914.

By the end of World War I, only four southern states had forestry departments. But beginning in 1921, the remaining Dixie States took on forestry in close succession with Tennessee leading the way, followed by Alabama, Georgia, Oklahoma, Missouri, Florida, South Carolina, Mississippi, and finally Arkansas in 1931.

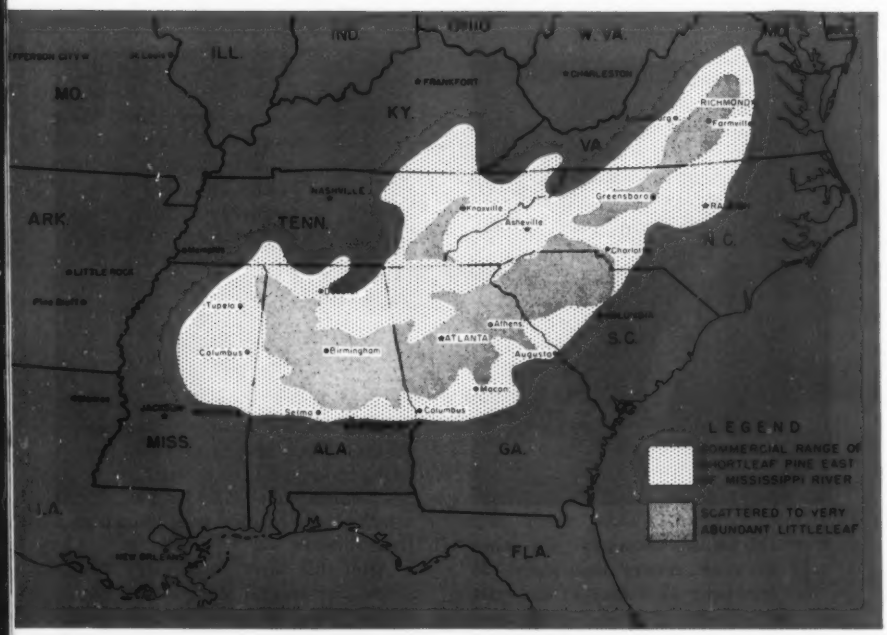
(*Turn to page* 45)

A CURE FOR

Littleleaf Disease?

Soil rehabilitation may offer a permanent solution for controlling littleleaf, worst forest plague of the South since the chestnut blight

By GEORGE H. HEPTING and GEORGE M. JEMISON



WE stood on a red clay road in Union County, South Carolina, while the forest supervisor pointed to a timber stand on the opposite hill that sloped down to Fairforest Creek. "It was near here where the littleleaf disease was first discovered in 1939," he said. There was nothing to resemble a "fair forest" in what we saw.

A quick turn through the woods and we could reconstruct the picture. Here, a few years before, had grown a thrifty old-field stand of shortleaf and loblolly pine, about 40 years old. Now scarcely a living pine could be seen over many acres, unless you counted the few struggling young trees trying to get through the hardwood sprouts, briars, and brush. The ground was covered with half rotted skeletons of sawtimber trees, while the remnants of long-dead and recently killed pines stood here and there. The soil of the worn-out and abandoned old field on which this pine had seeded many years before was hard beneath our feet.

Thus it is with many fine Piedmont stands of shortleaf and loblolly pine from Richmond, Virginia to Birmingham, Alabama and beyond. Since 1935, when littleleaf was first observed killing pines in Tallapoosa County, Alabama, it has appeared to a varying degree on 30 million acres in seven states. Littleleaf is a killer—the worst plague of southern forests since blight wiped out the chestnut. In 1950, $5,000,000 worth of pine pulpwood and sawtimber stumpage will be killed. According to the U. S. Forest Survey, in fifteen South Carolina counties today there are 118 million board feet of sawtimber plus 140 thousand cords of pulpwood dying of littleleaf.

Littleleaf affects primarily shortleaf pine and, to a lesser extent, loblolly pine. Diseased trees have a sickly appearance. The lateral and terminal twig growth becomes progressively shorter, foliage is yellow, and as the disease progresses needles become very short. Foliage on a littleleaf tree is sparse and the branchends have a typically conspicuous, erect appearance. Trees 20 years old or older are affected and usually die about seven years after the first symptoms appear or three years after advanced stages are evident. Stands break up gradually, but after ten years severe littleleaf gives an area the general appearance of having been heavily burned or clear cut some years before.

Despite the great body of information being acquired by forest pathologists, the direct cause of the disease has not been proved. Many possible causes have been studied and at least temporarily put in the unlikely class. We know that the foliage of littleleaf trees is deficient in nitrogen, although the soil may contain an adequate supply. Heavy applications of nitrogen fertilizers have caused diseased trees to regain health and vigor, and have prevented littleleaf among healthy trees.

Littleleaf occurrence is related to the internal drainage of soils, being less frequent and less severe on the soil types that are well drained. There

A healthy stand of shortleaf in the Piedmont

is excessive feeder-root mortality on stricken pines. The parasitic root fungus *Phytophthora cinnamomi* is abundant in the soil around littleleaf trees and has been demonstrated to attack their roots. Inoculations of large trees with the fungus have not yet proceeded far enough to determine whether littleleaf can be so induced. Thus, at present, it appears that littleleaf is mainly the result of a nitrogen deficiency in the tree, caused by deterioration of the feeder-root system.

To date, one thing stands out clearly—littleleaf is a problem associated with abuse of the land and upsetting of natural balances in the forest environment. Thus, regardless of the casual organism, if there is one, the problem becomes one of proper management of the forest and soil in which it grows. If the direct agent turns out to be a parasite like a *Phytophthora,* infected stands must be properly managed to minimize the damage and ultimately restore them to full productivity.

Restoring the Piedmont and upper Coastal Plain soils might check such a parasite. This would mean improving the air-water relations, building humus with its hundreds of competitive organisms, raising soil *pH*, adding nutrients and soil-conditioning organic matter to increase vigor, and providing vegetation to neutralize certain toxic conditions known to accumulate under some pure species composition. Clearly, then, the attack on littleleaf requires the combined effort of the silviculturist and the pathologist.

Except for agronomic techniques that include planting of lespedeza or kudzu on open land, the forest manager's best tool to bring about soil restoration is the forest vegetation itself. Soil rehabilitation can best be accomplished by manipulating forests to create desirable environments for plant and animal communities.

The forest manager, then, has these jobs to do in the littleleaf region: (1) Manage the existing diseased stands to salvage what he can of the present crop; (2) Introduce resistant species or resistant strains of our native species where possible; and (3) Rebuild the soil by creating a more favorable environment for roots and for desirable soil biology.

No tree with typical littleleaf symptoms has ever been known to recover naturally from the disease. This means that in stands breaking up with littleleaf, trees should be salvaged by frequent cuts. In highly accessible areas, salvage cuts can be made at five to seven-year intervals if all trees showing littleleaf symptoms are removed each time. Where littleleaf is extremely severe and on inaccessible areas, heavy initial cuts are warranted. Stands more than 30 years old, with average tree diameters over eight inches, should probably be cut heavily if littleleaf is showing up generally throughout. Such a stand will eventually be wiped out anyway by the disease.

Since loblolly pine is not so severely affected by littleleaf, and Virginia and longleaf pine are apparently unaffected, they should be favored in the natural regeneration of stands where the shortleaf pine is going out. Loblolly is a prolific seed producer, and two or three seed trees an acre will usually establish at least a partial stand of young loblolly. This pine will grow faster and attain a larger size than shortleaf on littleleaf sites because of its inherent juvenile vigor. Virginia pine is also a prolific seed producer and takes over readily where shortleaf pine is killed. It makes a good pulpwood tree, but produces small, low-grade sawlogs.

Species such as redcedar and the hardwoods, which are not affected by littleleaf, should be favored in salvage cutting operations. The hardwoods that will grow on severe littleleaf sites are usually inferior, but where stems of good form are present they should be retained. Their beneficial

effect on the soil is important.

It is obviously unwise to plant woods-run shortleaf pine on soils known to favor littleleaf disease. The use of non-littleleaf species or the planting of loblolly pine with the intent of managing it on a pulpwood rotation would be preferable.

So far, there has been little systematic effort to find a substitute for shortleaf pine. In the first place, soil conditions are often so poor where littleleaf is a problem that the likelihood of finding another species that will flourish is small. Furthermore, while there is still quite a bit of planting to be done on recently abandoned land, we are confronted with a problem of deterioration of timber stands 20 years old or older on 30 million acres. Even a greatly expanded planting program in the littleleaf states resulted in less than 100,000 acres being planted during the 1949 season. Establishment of successful plantations on millions of acres of wild land not recently cultivated is a difficult and expensive job at best.

Many foresters have noted that occasionally on littleleaf sites, where nearly every tree has been killed, some thrifty trees remain apparently unaffected by the fungus or the soil condition that is associated with the malady. Such observations kindle the hope that a naturally resistant strain of shortleaf or loblolly pine might be developed through controlled breeding or be perpetuated by vegetative propagation.

Healthy shortleaf pines contrasted with a tree ruined by littleleaf

Forest trees of a given species exhibit great individual differences in many ways, including growth rate, crown form, and branching habit, so it is logical to expect that similar differences may occur in the form and habit of root systems to such an extent that certain variants among these trees could grow in an unusually poorly drained soil, or that certain variants possess inheritable resistance to a root parasite, as demonstrated in the case of the resistance of strains of cotton, tomatoes, mimosa tree, and others, to fusarium wilts.

A shortleaf pine crossed with a pine species unaffected by littleleaf might yield a hybrid that would grow exceptionally well and also resist the disease. Vegetative propagation, such as rooting cuttings or grafting from resistant trees, would seem to offer limited promise, except for seed orchard purposes, because of the cost of producing stock in quantity by such methods. But even if resistant pines were available, the job of establishing them throughout the Piedmont would be tremendous. Probably of greater concern is the fact that, for the most part, these resistant pines would still have to grow on soils known to be generally poor for tree growth.

Soil rehabilitation may offer a permanent solution to littleleaf control. There is much evidence to support this position, and experiments are under way to shed further light on this aspect. The soil on which most shortleaf pine now grows has suffered various degrees of burning, depletion, and erosion during previous cultivation. There are many soils where several feet of the original profile, often including all of the topsoil, have been washed away. Compact subsoils, poor internal drainage, and low biological activity create a root environment that produces conditions undesirable for plant growth.

The Piedmont was originally covered by a mixed hardwood forest. Pine occurred individually or in clumps, but was plentiful enough to reseed abandoned fields quickly. The original forest soil was deep and permeable. Hickory, dogwood, yellow-poplar, and redcedar, together with the oaks, gums, and maple produced litter that built up the soil and kept it highly productive.

The pines on the old fields, however, are low-calcium species and are classified as soil depleters. Shortleaf pine foliage returns only one tenth as much calcium to the soil as do hardwoods such as hickory, dogwood, and yellow poplar. If calcium is deficient in the soil there will be a low *pH*, low

(*Turn to page* 30)

Littleleaf has eaten its way into this 50-year-old stand of shortleaf pine, attacked just as it reached sawlog size

Webster stands beside prize red oak

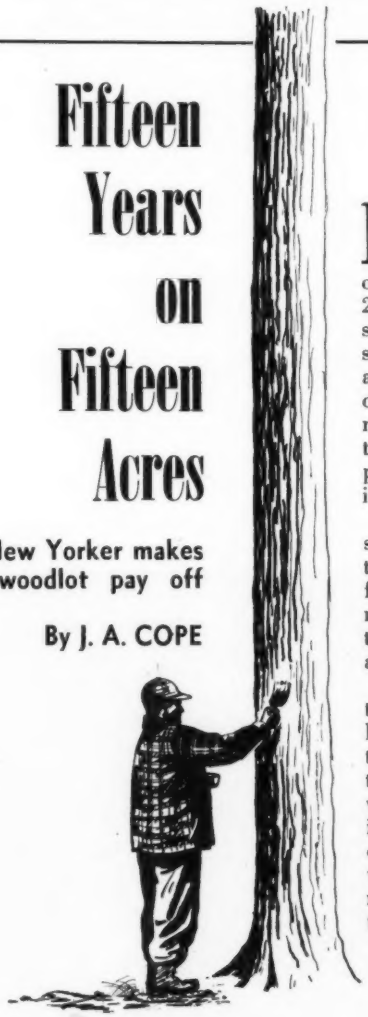
◀ Buildings on the poultry farm are repaired from the woodlot

▼ View of the woods from valley floor

Fifteen Years on Fifteen Acres

How a New Yorker makes a tiny woodlot pay off

By J. A. COPE



THE AUTHOR, *extension forester at Cornell University since 1925, died suddenly of a heart attack on August 26. He was a frequent contributor to* American Forests. *Widely traveled, he was beloved by forestry folk the world over.*

HENRY WEBSTER is a poultry farmer living four miles west of Auburn, the county seat of Cayuga County, New York. Route 20, the great east-west artery of the state, cuts his farm in half. On the south side of this four-lane highway are the farm buildings, a home orchard and fertile corn land. On the north side are other fields worked into the familiar rotation of crop and pasture. In the northeast corner there is a woodlot of around fifteen acres.

It has been a woodlot since those stirring early decades of the nineteenth century when Henry Webster's forebears, in common with other pioneers, hewed homes and fields from the magnificent forests of oak, pine and maple.

Viewed from the inside, it is easy to understand why the woods has been preserved for better than a century. From the rich, continuously cultivated soil of a small valley, the woodlot rises to a ridgetop characterized in the upper slopes by scattered outcroppings of lime rock. A plow would find no footing here. Since neither fire nor cows have had access to the woods, the soil is unbelievably rich with the century-long accumulation of humus and leaf mold.

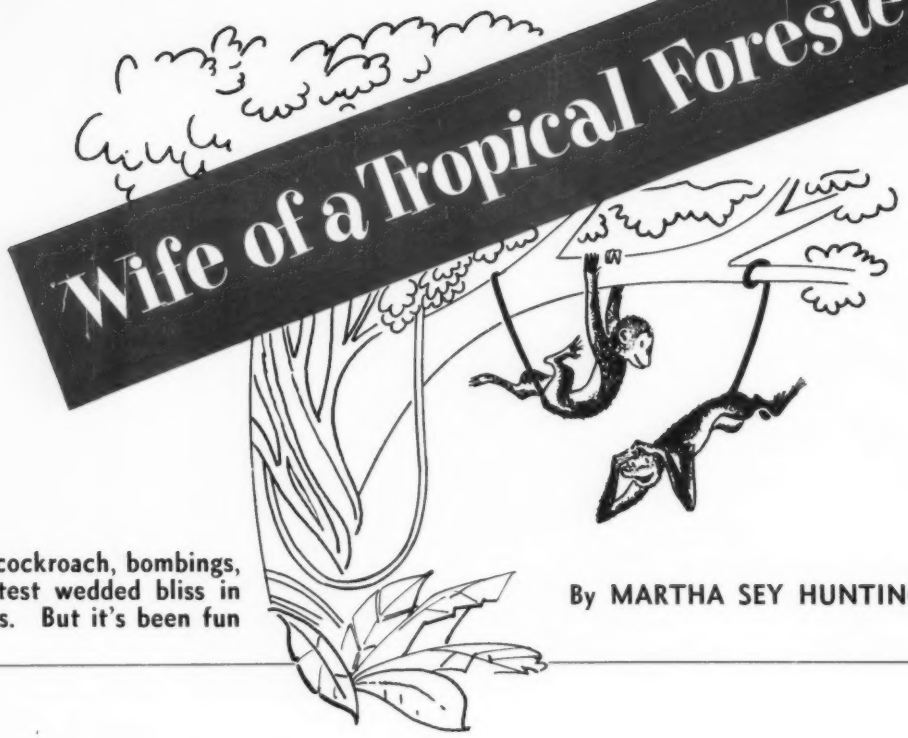
Mr. Webster recalls from boyhood to manhood how the woods, like the miraculous pitcher, always remained ample in spite of yearly drain for fuelwood and periodic drain for lumber, barn frames, and other uses. "We were always taking something out and never putting anything back," he records, "and yet there was always enough for our needs."

It was with such an outstanding cooperator and such a fertile wood soil that the first intensive demonstration in woodlot management in New York State was launched in 1932.

Intensity of woodlot management involves concentration of work on a small area. Mr. Webster thought with the help of his son he could cover five acres each year. So the rectangular block of fifteen acres was sub-divided into three blocks by the simple expedient of running compass lines through the woods at right angles to the long side and painting boundary trees on either side of the lines. Thus three five-acre blocks were quickly established.

(*Turn to page* 30)

Wife of a Tropical Forester



Soup a la cockroach, bombings, typhoons test wedded bliss in the jungles. But it's been fun

By MARTHA SEY HUNTINGTON

HOW would you like to live for years under the glaring tropical sun amid the terrific heat and humidity of the jungles? That is what I agreed to do when I married a traveling forester in my Alaskan home and left for a honeymoon in the Philippines.

After eighteen happy years I can look back on many unusual experiences—going up the Yangtze River to Shanghai with the ping of bullets against our boat and bombs bursting in the water all around us; listening to the roar of the typhoon and watching it engulfing houses and giant forest trees in its whirling grasp; flying two thousand miles up the mighty Amazon River.

My first trip to the Orient was like a fantastic story. Japan, traditional land of cherry blossoms, was bitter cold with several inches of snow on the ground. China, with its great crowds of beggars, its lovely embroidered linen tablecloths, and unusual food for sale in its markets such as roasted locusts and cooked cockroaches, was a land of continual contrast. Our twenty-six-day journey on the Pacific Ocean ended in Manila, one of the beautiful cities of the world. Even though it had been Americanized, it was still definitely oriental.

Our week in Manila was spent in the best hotel in town, and it was an attractive and luxurious place surrounded by graceful palms. You can't imagine my horror, though, the first night when I saw lizards running up and down the walls of our room,

The view was beautiful, life pleasant in the Philippines' Camarines Sur province

cockroaches dashing across the floor, and ants everywhere.

After a few days we ceased to notice the ever present heat and humidity, but I never became accustomed to the teeming insect life of the tropics. I did learn to tolerate it and after months of living there could flick an ant out of my soup and eat it (I mean the soup) with relish.

My first year in the provinces of the Philippines flashed by in a series of new impressions. Our lumber camp was in the process of construction, and it was interesting to watch the mill being built, the long rock causeway going up over the reef to connect with the wharf, the railroad grade stretching farther into the jungle day by day, and finally the heavy machines being swung off the boats and cemented into place.

Our house was built entirely of mahogany with flat pearl-like sea shells for windows. The native houses had a framework of bamboo, the walls and roofs thatched with nipa palm tied on with the tough bejuca vines. Trips up tropical rivers were enchanting — dense jungles on either hand and noisy monkeys in the trees. Sometimes we passed by an open place where Filipino women pounded their clothes with sticks to get them clean. Off a sandy spur a greenish brown log would suddenly roll and turn out to be a crocodile.

Even giving my Chinese cook the menu for dinner was an adventure. His languages were Chinese and Tagalog, a Filipino dialect, and there were no points of similarity between them and English. Our conversations were conducted entirely in sign language and I was never sure what we would have for a meal until I sat down to eat — sometimes not even then.

Every time we went out on the launch, we passed numerous schools of flying fish which never failed to fascinate me as, glittering like silver coins, they glided gracefully from wave to wave. Even a hike had its unusual events such as the time I actually saw tiny fish climbing a tree. I had thought that was just a fairy tale my husband told to amuse me.

The first typhoon was a terrifying experience; the rain flooded the earth and the wind increased in intensity hour by hour. The house shook and trembled in its grasp and the walls bent with the unceasing pressure until I wondered why the boards didn't break. With all the shutters closed and nailed down, it made me feel that I was cooped inside a huge box.

Martha Sey Huntington, born in Scotland, migrated with her family to Alaska where she spent most of her early years. She came to the States for her college training and met her husband while attending the University of Washington. LeRoy Huntington, a tropical logging expert and consulting tropical forester, headquarters on Long Island, but still travels in Latin America.

We watched through cracks between the boards and saw the cocoanut palms bending and bending until they lay prone on the ground. Then the native houses began falling like a row of ten pins in a bowling alley. Finally all we could see still standing were the giant trees of the forest bowing their heads prayerfully to the skies.

Then I understood why those trees needed great buttresses extending out from their trunks in all directions. When the wind finally stopped, the silence was almost unbelievable and we found that we were still shouting at each other.

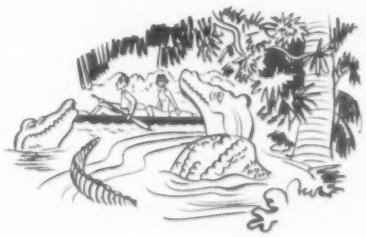
During the years we lived in the Philippines, we crossed the Pacific Ocean several times. Our most exciting trip was in 1937 when we got in on the beginning of the Chinese-Japanese War. The boat we were on was sent to Shanghai to take a load of refugees. Our journey up the Yangtze River was made to the tune of bullets hitting our boat as we passed between Japanese gunboats firing at the banks and the Chinese firing back.

When we finally anchored off Shanghai, we sat for six hours and watched the Japanese planes bombing the city, and buildings collapsing in great explosions. At times we felt like a floating target as bombs exploded in the water perilously close to our hull. We even had a grandstand seat for an airplane fight between a Japanese and a Chinese and saw them both go down in flames. Finally my excited five-year-old son danced up and down yelling, "Mama, Mama, isn't this fun? It's the first war I've ever seen!" Everyone laughed at that, for war wasn't a customary sight for any of us.

Our first home in the Philippines was in the province of Camarines Norte, the next in Camarines Sur. Here the American homes were on a cliff, with a beautiful view of the vivid blue ocean and the great waves topped with whipped cream foam as they broke on the coral beaches. Our houses were surrounded with green lawns, flowering hibiscus hedges, and cocoanut palms—life was pleasant.

There were eight American women here and we had fun together with parties and trips. Most of us had been raised in the United States and thought of Christmas in terms of snow and cold, while in the tropics, where the shimmering heat rose in a cloud of steam from the jungle, it was hard to believe the holiday season was approaching.

But every year at this time we'd go on an all-day excursion down a large river to gather our trees. The trip was made in bancas which are small boats with outriggers. Chattering monkeys, brightly colored



birds, and lethargic crocodiles were always a source of interest, especially to the children. Just before coming out on the ocean, we had to wriggle our way through a mangrove swamp with the great intertwining roots of the trees blocking our way in all directions.

At the river's mouth stood a small grove of long needled evergreens, the only trees with needles I have seen growing in a tropical climate. They were sorry looking specimens, with a branch here and there. We usually took home three trees apiece, from which we would fashion a conventional Christmas tree. Covered with decorations and lights, it looked lovely. All of us felt a real sense of

achievement when our trees were ready for exhibition.

Our peaceful life was interrupted when fire destroyed the sawmill. That was a night of smoke and flame and terror, with the great mill smokestacks falling and booming through the darkness. After this most of the Americans left, but we were there for almost a year longer. Life was very quiet, but I had a new hobby—sea-shell collecting. All of the time not devoted to teaching my son was spent on the coral reef picking up and digging out unusual and beautiful shells of the islands. When we left, I had over five thousand specimens comprising more than a thousand different species.

During this year the tension of war had been gradually gripping the Orient. As we felt it wouldn't be long before the Philippines would be involved, we came back to the United States, arriving about two months before Pearl Harbor.

Indians paddling up the Amazon River

The next year was spent in Mexico. We made our home in Guadalajara, and after our years in the jungle, we thoroughly enjoyed city life.

The most interesting event of that year was our trip to Paricutin, the new volcano which had erupted in a farmer's field just six weeks before. We arrived there at midnight and it was an awe-inspiring sight—a dazzling display of fireworks, a continual roar of sound, and the earth shaking under our feet. We walked right up to the cone, close enough to reach out and touch the molten lava. After over an hour of dodging new flows of lava coming down the sides and redhot rocks continually spurting from the top, we decided this was living too dangerously even for us and retired to a safer spot.

From Mexico we wandered to South America, and our next home was on the banks of the Amazon River. This was our longest journey by airplane which took five days from Miami.

In Belem, Brazil, we changed airplanes and from there our long trek of two thousand miles up the river began. As we flew hour after hour with the mighty Amazon below our wings and the unending jungle stretching to the horizon on either side, we began to realize in what an uninhabited and unexplored region of the globe we intended to make our home.

My husband had preceded us and

we were happy to see him awaiting us on the river bank. His first words were, "I managed to find a house and you can't imagine how I got it; I won it on a raffle for a dollar." Then he explained that it wasn't too bad—it was one of the few houses in town with a wooden floor instead of a dirt one.

By this time I didn't know just what to expect, but after two weeks of hard work, our little palm-thatched, tropical shack was quite presentable. It was newly whitewashed inside and out, the many broken and termite-eaten floor boards were replaced and the windows screened. With curtains at the windows and magazine pictures on the walls, it looked like home.

Our greatest problem was getting a bed, for the people of the river valley sleep in hammocks. We had ordered a spring and mattress from Bogota but thought it would take at least three months to come over the mountains and down the river. You can imagine our delight when it arrived on the monthly plane from the city.

It was the most primitive place in which we had lived. We had no running water, no sewerage system, no refrigerators or ice, but we did have electric lights from six to eleven every evening and the programs on our radio kept us amused. We built a shower bathroom with four oil drums overhead which were filled with rain water from the roof. Three more drums of water outside the kitchen door furnished the cook with what she needed, and our elaborate plumbing was installed.

Food in our little town of only a thousand population was always scarce and expensive. Chicken and fish were on sale at the market, but meat, except what we got out of cans, was non-existent. Once each month an airplane brought in the mail, and about every six weeks a boat arrived with supplies. My grocery order had to be mailed three or four months before I wished to use the items on it.

Have you ever tried to decide what you wanted to eat three months in advance? It's fun, but we were often short of much-needed edibles. I'll always remember the time we ran out of salt! The only kind to be bought in town was the rock salt we throw on our icy sidewalks. My son was disgusted when I brought it home, but I told him to wait and see. I put it in a pan with some water and placed it on the stove to melt. As the water boiled away, lovely white table salt crystallized on the bottom, much to his amazement and delight.

Another shortage didn't turn out so well. We were having the three other Americans in town for Christmas dinner and as I had been unable to get anything to make a traditional dessert, I told the cook to make a white cake with white frosting. Our dinner was delicious until we reached dessert. Isabel brought in the cake, and it looked like the perfect end to a meal.

My first bite, though, convinced me that it had a very peculiar taste. I called in the cook and asked her what she had used for flavoring. She replied, "You told me to make a white cake with white frosting. When I finished the cake, there was no more sugar so I decided to cover it with some of that pretty white stuff you have in the can." She went to the kitchen and brought it in to show me. It was my can of Crisco! We all had a good laugh, scraped off the Crisco and ate the cake. Our life in the jungles had taught us not to waste food.

Altogether, life there was amus-

(*Turn to page* 28)

Adventuring in Trees and Grass

This fifth in a series of six articles on Mr. McKnight's Cornwell Farm in Virginia had to await the completion of his modern, economical barn which he describes here. Designed by the Doane Agricultural Service, it features numerous labor-saving devices that may bring the city boy back to the farm.

By HENRY T. McKNIGHT

WHEN a farm operator, in the name of modern operating efficiency, decides to tear down the old barn, change a fenceline or even chop down the old pine tree, he runs smack into trouble from his friends in the city. To date, city people still want farms to look the way they always have. The mechanized rat race of city life makes city dwellers nostalgic for the security of their childhood in the country. The old barns, overgrown hedgerows, and winding lanes are the reminders of those more enjoyable days. And they are not to be tampered with.

At the same time, our city friends are scolding grandpa who has become the symbol of all the worst in old-fashioned agriculture. They object to his plowing uphill and down. They claim he raped the land with corn and cotton. They say he ravaged our forests. They demand that agriculture mend its ways.

As more and more farmers mend their ways, they are beginning to see that one of their problems is to find a new set of tools for the new agriculture that will be more appealing to their city friends. After all, the city man is the boss. He buys the produce. He's the man to please.

We all recall the old barn on the family place. It was a fine monument to grandpa's own success. But to ask this old barn to serve modern agriculture is like asking a Detroit blacksmith to make you a 1951 Ford. Here's the way Louis Bromfield described the old barn in *Pleasant Valley* (Harper & Bros.):

"The old barns built in the time of the great tradition of American agriculture when the new land was still rich and unravaged by greed and bad farming, had each one its own character, its special beauty born of the same order of spirit and devotion which built the great cathedrals of Chartres or Rheims or Salzburg. They were built out of love and pride in the earth, each with a little element of triumphal boastfulness—as if each barn was saying to all the rich neighboring countryside, 'Look at me! What a fine splendid thing I am, built by a loving master, sheltering fat cattle and big-uddered cows and great bins of grain! Look at me! A temple raised to plenty and to the beauty of the earth! A temple of abundance and good living!'"

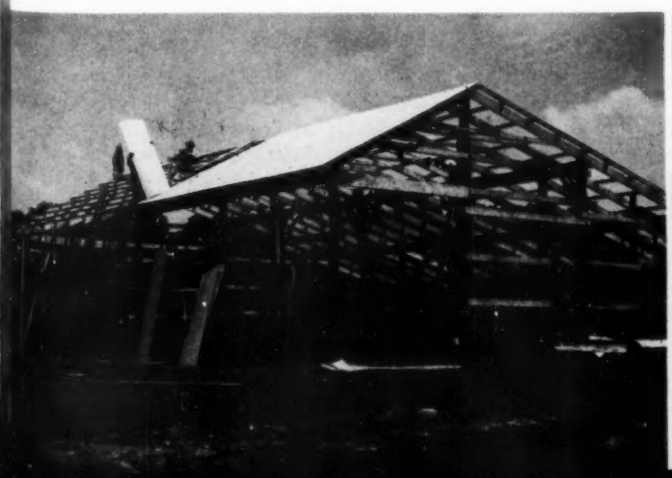
For a time, we had to keep one of the old barns going. The encumbrance we inherited at Cornwell Farm was built long ago—in the time of the so-called great tradition. But we failed to catch its special beauty, for it had none. It never said, "Look at me!" but we were forced to do so because it sat plumb in front of the house obstructing as fine a prospect of rolling pasture and rich woodland as can be seen in the country. Indeed, our decaying temple of plenty had become a rat's nest. It had served out its time in the great tradition. And now, unloved, its only future lay on our woodpile.

Our new barn? We've seen so many of our farmer friends creeping down the road of life crushed and smothered under the load of their ancient barns that our first resolve was to make our new barn as modern and as effortless as possible to both man and beast. And this modern agricultural tool had to have a beauty that was as real to us as the old-fashioned temple of abundance.

In the Bromfield vein such a new barn might be described: Built in the new era of American agriculture when the farmed-out land of the great tradition is being restored to even greater productivity through modern land use methods and tillage practices. The new barn's own special character and beauty is its utility and economy — characteristics nowadays expressed in the city in such modern tools as Radio City or the DC-6.

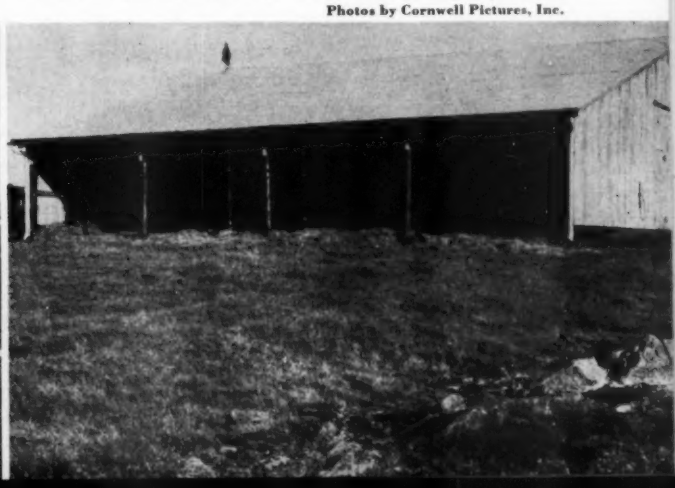
Like Radio City, it boasts not of its beauty but says, "Look at me! What a convenience I am. Think how many steps I save my busy master, how many hours of irksome toil. Despite my compactness, I shelter many more fat cattle and big-uddered cows than my barn forebears because my master knows that his animals prefer a partially open, shed-like

The author's 80-acre tree farm provided lumber for the barn. Because of simple design, it was completed in 17 working days



The new barn—a monument to utility, economy. Only link to old tradition is its cedar tree good luck symbol

Photos by Cornwell Pictures, Inc.



building to being tightly cooped up within the sweaty confines of my lordly predecessor."

We've heard the new barn speak. But where do we find barn economy and simplicity? Where's the barn that will save us steps and oblige our pocketbook? Show us the barn preferred not by nostalgia but by the big-uddered cows themselves.

A Gallup Poll of fat cattle today might show these modern barn preferences: Freedom to come and go at will, shelter in the worst kind of weather, easy feeding, comfort underfoot. Farmers similarly polled would prefer: Economy in building and operating costs, easy feeding, cattle comfort. Note the similarity. And recall that identical aims mean quicker results.

Like many other modern farmers we turned to the far-famed Doane Agricultural Service in St. Louis for advice. For more than 25 years Howard Doane and his associates have been researching farm construction ideas and have been developing plans for farm buildings as low-cost tools. In developing the plans, the designers asked themselves: Is this 2x4 necessary? Can this piece be eliminated? Is there a better way to do it?

One of their achievements is the Doane low-cost Pole Frame barn requiring one third the lumber and construction labor of a conventional building of a size to do the same job. We paid five dollars for our set of blueprints and detailed instructions.

From our own 80-acre Tree Farm came the board feet of pine, oak and poplar — rough-sawed to required dimension at a portable sawmill just down the road. From the American Lumber and Treating Company in Baltimore came the creosote pressure-treated poles. The aluminum roofing came to us through courtesy of Henry J. Kaiser. So simple were the plans that we felt that anyone with a working knowledge of a Meccano set could master them. Our contractor had the job completed in 17 working days. The dimensions are 52 by 52 feet—total cost of $2200.

Compare the picture you have in your mind of the traditional old barn with our new Doane barn at Cornwell. The old barn is lofty, ours is built low to the ground—less wind resistance, lighter weight. The old barn had its haymow. In ours, sensibly, the ground supports the heavy tons of hay and feed, doing away with the heavy construction required to support these tons overhead.

Author's sons inspect progress

Who doesn't remember the back-breaking effort of loading the old barn and the almost equal chore of getting the hay back down to the animals? In the new barn the hay is piled handy to self-feeding bins. You knock off what you need from the top of the pile, let it fall into self-feeding bins and your work is done. Your old barn's bulky frame defied the elements. Ours cooperates with them. It shelters the animals in a temperature nearly the same as that of the outdoors to which they are accustomed. Did you ever have to clean out the old barn? Then you'll appreciate how you can drive right into the Doane barn with your power equipment and do the job in a trice.

Carried away by the modern, labor-saving idea, we took some more lumber from the Tree Farm's growing supply and built a cattle chute, a "must" for a beef cattle farm. Modeled from a plan developed in the Argentine this handy device can be operated by one man, who, standing at his "command post," can cut and sort into either the chute or its three pens all the animals a place the size of ours can ever carry.

We located the chute alongside the new barn where the cattle will feed, thereby insuring their daily acceptance of the device that might sometime cause them pain. On the opposite side of the barn we are building a self-feeder calf creep, thereby providing a close-knit unit for the complete shelter, feeding and handling requirements of our herd. This winter we will add a self-feeding silo to the arrangement.

When the barn was completed we showed it off to our friends and neighbors. With us that day were AFA's S. L. Frost, our County Agent Joe Beard, Senator Ed Thye, and a number of others. Senator Thye called it a common sense unit. He said that when he was a boy on a farm he and his brothers spent most of their time figuring ways and means to get away to the city because of the tough farm work they all had to do. The labor-saving unit will attract youth back to the farm; the college graduate will go back to the farm rather than look for white collar work in the city. Others present that day remarked that the unit is bound to pay off, that it is a barn the beef animals can afford. Since that day we have had a steady stream of barn-conscious visitors and many of them are now building units like ours.

Most farmers comment on the small cedar tree we nailed to the ridge. Our "barn tree" is the good luck symbol we borrowed from the old tradition to bring many more fat cattle to our herd. We always admire the old traditions, but when it came to building a new barn, the only link to the old tradition we found of use to us was our barn tree.

Wife of a Tropical Forester

(*From page* 26)

ing. Even the view from our windows of the varied life of the street was like a travelogue—women coming up from the river with great bundles of washing piled on their heads, men with poles balanced across their shoulders and heavy sacks or cans tied on each end, completely naked small children running and playing, trees with exotic tropical fruit, and once in awhile a snake crawling along.

To come out of the jungle once again and live the luxurious and highly civilized life of the United States was quite an adjustment, but one we were happy to make. We appreciate many things that other Americans take for granted such as running hot and cold water, paved roads, the marvelous and unending variety of the five and ten cent stores, and feasting our eyes on pyramids of food at the Super-Market. But when life gets rather hectic, we sometimes wish we were back in our peaceful and interesting jungle home once again.

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15 Years On 15 Acres

(*From page* 23)

The removal of certain trees would actually benefit the productive capacity of the woods, Mr. Webster knew, so the next job was to mark those to be cut in the first tract. This included dominants in the upper story which had reached maturity and should give way to more vigorous competitors, intermediates that were being squeezed by aggressive neighbors, and in the understory, such weed species as ironwood, dogwood and beech suckers.

The other two blocks were similarly treated in succeeding years. For the fourth year's cutting a return was made to the first block. On this and all subsequent rounds the cutting was a matter of simply collecting the growth of the three previous years by removing enough trees to equal that growth. In the meantime, from the inexhaustible understory other saplings would push up to occupy their places in the sun. Thus the woodlot became a savings bank account with interest only being taken out each year.

The final test of a really successful job of farming the woodlot on an annual instead of a periodic basis must be found in the answer to this basic question: does it pay, not just in satisfaction, as worthwhile an incentive as that is, but in actual dollars and cents? Having always kept records and books on his poultry business, it was no trick at all for Mr. Webster in the beginning of this enterprise to set up another column for the fifteen-acre woods.

In the period from 1932 to 1947, he and his son spent a total of 3526 man-hours in this woods, felling, bucking, skidding, buzzing and hauling products to house or roadside, as the case might be. For most of the years the chief tools were ax and crosscut saw, supplemented by a tractor-driven saw rig for buzzing up fuelwood, and a tractor for hauling logs to the roadside, or fuelwood to the woodshed. Recently a power chain saw has been added to the equipment.

The average, then, has been 235 man-hours a year. On almost any farm in the Northeast, four hours a day can be found in the winter between chores to work in the woods. So on that basis, for the two of them, only thirty days of four hours each are needed to do this intensive work which, it should be remembered, is concentrated each year on five acres.

Because of Mr. Webster's unusual location along a main highway and near a sizable city, marketing the woodlot products has been no problem. In fact, special demands for stove and fireplace wood in fractional cord lengths have enabled him to get a per cord price at the roadside that is better than average. Beginning at the bottom of the depression in 1932, the roadside price of stove wood (fourteen inches in length) was only $2 a cord. By 1947 it had risen to $5.50. For the fifteen years, 1156 cords were cut and sold or used at home. For bookkeeping purposes, wood for home heating was charged at the same rate as that sold. This brought in a total of $4284.50, and was supplemented by $527.80 worth of sawlogs also sold at the roadside. The grand total is thus $4812.30 for fifteen years on fifteen acres. This is a gross return of $21.38 an acre annually—and the woodlot is in better shape today in health, vigor and growth rate than it was in 1932.

Perhaps the most significant and telling way to evaluate the profit or loss inherent in woods work is to put it on an hourly basis. From the gross return noted above, it is necessary to deduct charges for the use of buzz rig and tractor. Taxes on the woodlot might be considered also, except that they go on whether the woodlot is managed or not. When the 3526 man hours are divided into this net total, it is found that the return is around $1.25 an hour—a favorable comparison indeed with the return from many other farm enterprises.

The Webster woodlot is assured of continuing success due to good soil, good species, good markets, and best of all an interested son who will carry on his father's practices.

Littleleaf Disease

(*From page* 22)

bacterial count, and low nitrification rate. Littleleaf may be affected by any or all of many calcium factors, and there is danger of aggravating other soil problems in growing successive crops of pine on many of the Piedmont soils.

The only practical way that the forest land manager can bring about soil improvement is through the manipulation of the forest vegetation itself. Since the hardwood species in general are the best soil builders, the silviculturist must introduce practices that regulate the hardwood component in relation to the soil condition. On some sites he can probably continue to grow successive crops of pine without littleleaf or site degeneration.

On others, pine-hardwood mixtures will be required to maintain soil conditions that are desirable from the standpoints of timber growth, freedom from littleleaf, and water yield. But in much of the littleleaf area, forest composition may have to be guided toward stands largely of mixed hardwoods, so that as the soil is built up it will support still more valuable soil builders such as the high-calcium hardwoods and redcedar. As a minor component of such a forest, shortleaf pine might thrive and be free of littleleaf in much of the Piedmont.

Much research needs to be done to learn how we can best control composition of forest vegetation. The U.S. Forest Service has made a small start at the Calhoun Experimental Forest, a field laboratory of the Southeastern Forest Experiment Station. This work is in close cooperation with the Division of Forest Pathology of the Bureau of Plant Industry, Soils, and Agricultural Engineering. Three similar watersheds of 12 to 15 acres have been marked for treatment. One will be handled to perpetuate as nearly as possible a full stand of shortleaf pine, all hardwoods being removed periodically. On a second area, hardwoods will be favored, especially the soil builders like hickory, yellow-poplar, and dogwood. Underplantings will be made if necessary. The third area will represent a balanced pine-hardwood mixture. Changes in the chemical, physical, and biological conditions of the soil are being checked. *Phytophthora* inventories are being made and soil-water relations will be studied.

Control of littleleaf through soil rehabilitation will be a long, slow process, yet it may be the soundest ultimate solution. It may also provide a permanent solution for many other ills that hound those who try to grow trees on depleted soils.

New Forests For Ohio

(*From page* 8)

and his assistant, a forester who serves also as field director, an expert on fish and wildlife, and an agronomist and soils technician. During the planting seasons hundreds of planters, supervisors and foremen supplement the regular staff.

The first step in actual reclamation is the land use survey. All possible data about the areas to be reclaimed are gathered in personal visitations by members of the staff. What is the land use history, the present use of the adjacent land, the future mining possibilities? Are dairy barns or other buildings accessible? Are there any near markets which would influence the use to which the land should be put? A soil condition report lists the general topography of the area and the composition, texture and general chemical condition of each different type of material encountered. Soil samples are also taken for laboratory analysis, and if no map is available from the mining company a rough sketch of the area is made.

The laboratory analysis is primarily for agronomical purposes. It gives an accurate *pH* reading which shows the degree of acidity or alkalinity to be dealt with, and determines the mineral deficiencies and the amounts and types of fertilizers needed for pastures, orchards and other such uses. When all of the data is assembled, a conference of the field staff determines the land use possibilities of the area and a report is made to the mining company. Where the mining operations are on a royalty basis or on leased land, these studies are in turn submitted to the landowner.

Most of the strip land is owned outright by the mining companies, and most of the mining companies are primarily interested in growing trees. Some of the larger corporations hire farm managers and go into the business of farming; some of the smaller companies reclaim their strip lands as a part of adjacent farm land. For most, the solution is trees, because trees, given the proper protection against fire, can be left to grow for a dozen or so years. By the time

(*Turn to page* 34)

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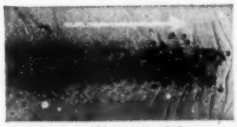

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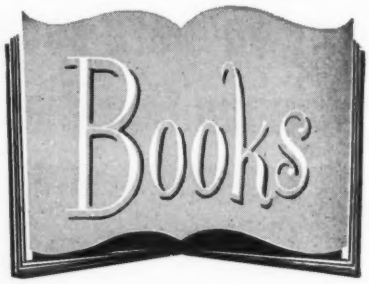

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AMERICA'S NEW FRONTIER, by Morris E. Garnsey. Published by Alfred A. Knopf, New York City, 314 pages. Price $3.50.

The Mountain West, eight states of the Rockies, is a frontier of new industries, capital investment, land conservation and reclamation, dams and lakes, power development, silver, sheep, sugar, shale oil and atomic energy seething with vast and dramatic changes. The author concludes with a 12-point declaration of liberal economic policy for this region of opportunity—a region capable of supporting several million more people.

WHITHER AWAY? by "Pipesmoke" Cary. Published by E. F. Cary, St. Paul, Minnesota. 132 pages, illus. Price $2.50.

This volume tells in intimate style the personal experiences gathered from over a generation of travel in the famous Quetico-Superior wilderness canoe country of northern Minnesota and adjoining northwestern Ontario. The stories are told as seen through the eyes of a true wilderness lover and one who has a keen concept of the values that wilderness contributes to the welfare of mankind. The generous number of illustrations heighten the text.

Besides the friendly warmth of its raconteur style, it contains valuable advice and instructions for modern day voyageurs who elect to wander anywhere in the Quetico-Superior country. Equipment, portages, campsites, maps, and a fund of other such valuable information are included. Even during long winter evenings the book will waft one back to dreams of travel alongside the French voyageurs and pioneers of old in the setting of the Quetico-Superior International Peace Memorial Forest.

PENNSYLVANIA'S SUSQUEHANNA, by Elsie Singmaster. Published by J. Horace McFarland Company, Harrisburg, Pennsylvania. 236 pages, illus. Price $6.

The author, from her childhood a lover of the Indian-named Susquehanna River, describes it in five river sections—the North Branch, the West Branch, the Juniata, the Main River from Northumberland to Harrisburg and the Main River from Harrisburg to the Maryland border.

Pennsylvania's Susquehanna is profusely illustrated with many of the photos made specially for the book. There is one chapter about the canals that paralleled the course of the river and its branches. In this section, it was necessary to go back fifty years or more to show this mode of water travel.

Here is an accurate picture of the Susquehanna as it may be seen by natives of Pennsylvania or by the many visitors who use the highways that follow its banks or cross its "shining water."

FIELD BOOK OF NATURE ACTIVITIES, by William Hillcourt. Published by G. P. Putnam's Sons, New York City. 320 pages, illus. Price $3.95.

This book contains instructions on how to make a very useful and enjoyable study of the many phases of nature. It makes suggestions for the selection and use of materials and equipment for individual or group means of exploring the out-of-doors. There is a step-by-step description of ways to make permanent nature collections and take nature photographs—movies and stills—in black and white or color.

For the most part, the book is devoted to project activity—things to do and things to make—in the fields of nature concerning birds, mammals, reptiles, fish, insects, wildflowers, and trees. Project outlines are further described by numerous drawings and diagrams.

Although the text is printed in small type, it serves to condense the entire volume into a handy, pocket-size book—easy to pack along to camp and field. Nature hobbyists, leaders, or students from youth to old age will find this a very valuable and entertaining guide book. Girl and Boy Scouts should find it most helpful toward passing tests for merit badges because the author, William Hillcourt, is National Director of Scoutcraft and the pursuit of nature has been his lifelong activity.

TREE CROPS—A Permanent Agriculture, by J. Russell Smith. Published by the Devin-Adair Company, New York City. 408 pages, illus. Price $6.

Here is a book that will probably still be interesting reading a hundred years from now. It is a revised version of the first edition which appeared a generation ago, brought up to date but not essentially changed, and its message still stands as firm and vital as ever. Russel Smith has a lively style, easily read, but what is far rarer than that, he has lively ideas. I read it twenty years ago, and read it now with increased enjoyment.

What this book proposes is that we stop erosion in America not by government control at all, but by developing profitable crops from trees. Sloping land planted in trees does not erode. The author does not refer to such "crops" as lumber, but literally crops that grow from trees—fruits, nuts and pods. The subtitle, "A Permanent Agriculture," gives the idea. His thesis is that if there is more money to be made out of trees than corn, then hillside farmers will stop planting corn. It is as simple, as American, and as shrewdly practical as that.

Of course, the problem is to find tree crops that yield large profits, which the book discusses at length. It is a large book, well documented and with plenty of detail and many interesting photographs. The author's long experience with his own experimental hillside farm in Virginia lends the reader confidence. There are actually a few practical tree crops that can be planted now with every prospect of profits comparable to those from grain or grass. A surprisingly large number of exciting possibilities may be made practical after a little time and money has gone into developing them. Far less time and money, by the way, than is spent for just one of the many huge dams that land neglect in the past has made necessary.

Laurence Manning

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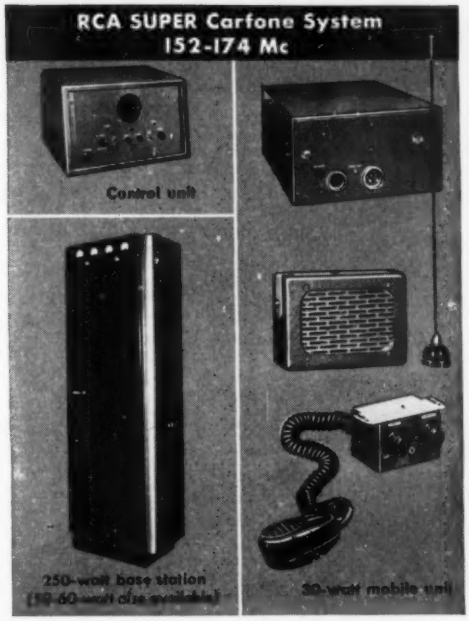

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New Forests For Ohio

(*From page* 31)

they need management, it will pay for itself in the thinning cuttings.

A more compelling reason for mining company interest in growing trees is the need for timber in mining operations. A survey made by the Forest Resources Appraisal Board of The American Forestry Association, at the behest of the Ohio Coal Association, revealed that one board foot of timber is required for each ton of coal produced by strip mining and 3.89 board feet for each ton of coal produced by deep mining. If all of the present and potential strip lands in Ohio were growing timber today on a sustained yield basis, they could not supply the timber requirements of the state's three largest mining counties. Most serious deficiency is in hardwood sawtimber, some of which is already being imported.

The multiple use value of forest plantations also whets mining company interest in timber growing. The forest plantations make an ideal habitat for wildlife, and using them for recreation does not interfere with their primary function of growing timber.

Whatever the use decided upon by the landowner, the Association urges that reclamation extend beyond the strip banks and include adjacent areas as well. Most of the member companies are doing this, some even on leased land which will revert to the landowner as soon as the mining operations are completed. Some of the big operators, such as Hanna Coal Company, Powhatan Mining Company, and Ohio Power Company which is doing its own reclamation, have large blocks of land solidly planted. Hanna has one such area of over 1300 acres planted to hardwoods on the bank and conifers on the undisturbed land. This area is now ready for lake and recreational development.

Although the Association spends considerable time in surveying and planning, this is only the first step in reclamation. Planting stock must be obtained, seed purchased, planting crews hired and trained, and the planting and seeding carried out efficently and economically. This latter is made more difficult by the fact that planting machines cannot be used on the strip banks due to the rock content, and all plantings must be made by hand. At the end of the planting season, diameter and height growths of previous plantings must be measured and recorded, and as soon as the hot, dry days of summer have ended, survival counts taken of the plantings made in the spring. In the fall there is another planting.

The species of trees used include black locust; tulip poplar; red, silver and sugar maple; basswood; white and green ash; black walnut; sycamore; cottonwood; red, white, chestnut, bur and pin oak; catalpa; red elm; red gum; hybrid poplars; Chinese chestnut; black cherry; and, among the conifers, red, white, Scotch, Virginia, pitch, jack and shortleaf pines; Norway spruce; redcedar; European larch and baldcypress.

Efforts to plant the best species on each series of banks are handicapped by the shortage of trees available in the nurseries. Needs of the Association members are about two and a half million trees annually. This year only 505,000 seedlings were purchased from the state nurseries in Ohio. Over 700,000 had to be obtained from eight other states.

The Ohio Reclamation Association enjoys the full support of its membership. Without this support it could not function, for it is entirely a voluntary organization. President Robert B. Marshall, the other officers and the directors are all executives of mining companies who have given the Association the benefit of their leadership.

Assisting the director and serving as executive secretary is Robert J. Kinnard, formerly of the Ohio Department of Highways. John M. Crowl, for 12 years with the U. S. Forest Service as district forest ranger and forest nursery manager, is field director and forester. Assisting Crowl and responsible for recreational developments is Charlie MacIntire, formerly of the U. S. Fish and Wildlife Service and the Ohio Division of Conservation. Soils Technician James Rees, graduate agronomist, is the most recent addition.

Canada's Approach

(*From page 9*)

anywhere wants more barrens.

But it was more difficult, and still is, to indoctrinate the idea of perpetual forest-cropping through skilled silvicultural treatment, and by using a branch of the engineering profession that knows something about sustained yield. Frankly, with public masses we never tried to explain silviculture — seldom used its name —except by illustration of its social consequences, and by reducing it to terms of capital and interest. I still believe that the symbol of capital and interest is the readiest and most potent of all symbols appealing to the lay public.

Most of the proof of social benefits of forest management we took from Scandinavia and Europe. And let me say that it was a knowledge of Swedish practices, or at least the principles inspiring such practices, that brought tens of thousands of Canadians to grips with forestry as a workable enterprise. People were eager to hear of overseas folk who had such a hunger for racial continuity that they wanted their forest possessions made continuous, too. Or of rural parishes that built reserve funds of as much as $3,500,000 from shrewd cooperative handling of their communal lands.

It is all very well for critics to say that Scandinavia is too different for North American imitation. So it is different, and one of the differences is that just 45 small fires were started in Sweden last year, and most years, by recreational users of the woods. One day I met a Swedish ranger and said to him: "What's your program when you meet a bad fire outbreak?" And he replied: "How would I know? I've only been here for 25 years." We need that difference tranplanted bodily to the North American scene.

Keeping in mind that both the American and Canadian forestry associations are educational institutions, I suggest to you two deductions from our experience that both of us may find useful. One is that the winning of popular interest in forestry is beyond the reach of the ordinary

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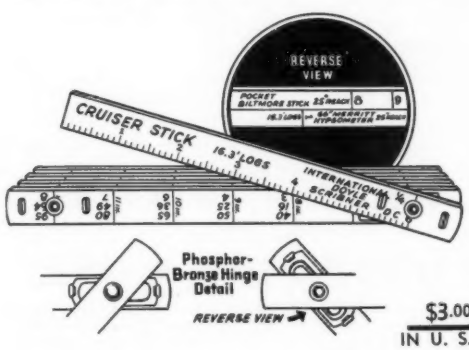

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techniques of the national advertiser and the sloganeer. Most advertising is based on personal emotion. Actually, 85 percent of all advertising copy appeals to desire and the instinct for emulation. The sloganeer, in his turn, is a word-juggler, a wisecracker, and you can't wisecrack the dignity and altruism of conservation.

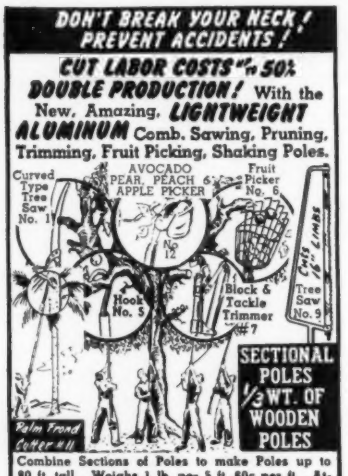
Where fact and argument do strike home most usefully is at the point of local contact between population and the living forest. There the values are visible and self-interest is active. The best propagandist within reach is the tactful, well-educated fire ranger and forester, preferably one with crusading fire in his soul, who wins friends for forestry through winning friendship for himself. But in any event, propaganda on forest protection and management bites deepest when set working in or near a forest region.

Another lesson we have learned is that you may stir up a sizable army of individual conservationists without thereby adding to your fire-power in the betterment of local or federal conservation policy. The individual fights, if he fights at all, as a contingent of one. He has zeal and altruism aplenty, but he needs to channel them through a Chamber of Commerce, or other compact influence that has a sense of power and good timing and lots of punch, plus the addresses of the fellows who need the punches.

You can't drive a nail with your elbow, but it's no effort at all with your elbow and a hammer. So, we have said to all these lone rangers, if you truly want conservation of natural resources for that grandson of yours, look for the heaviest hammer of organized prestige to be found in your community. Make your ideas vocal. Get them recognized as material for joint recommendation. Work yourself into a committee on public policy. Stick to collective action. And for goodness sake, don't surrender your original zest in the ensuing scuffle.

No man can wrestle long with the problems of the natural resources without envisaging the whole wide world as his province. When we look upon woods, waters, or soil as a social utility, we expand enormously the bounds of our observation and concern. Forests and streams—symbols of the wilderness and isolation—take on quite opposite characteristics when men meet together to ensure the renewal of these treasures for future generations.

On such occasions we deal not in acres and cords but in human advantage. Flags and map-makers' boundaries mean little to us, for the bounty of the earth is everywhere and we want all nations and races to avail themselves of it. I think that H. G. Wells, in one of his most stirring messages must have been speaking with the tongue of the conservationist: "Hitherto, Man has been living in a slum. He has scarcely tasted sweet air yet, or the great freedoms that Science has enlarged for him. In a few generations, every human being could be made healthy in body and intellect, the whole solid earth man's mind and its outermost region his playground."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Federal Forestry Progress

(*From page* 18)

in other ways besides management of public lands. As early as 1898—before there was actual management of national or state forests—public foresters were seeking to promote sustained-yield management of privately owned forests.

Soon to follow was public assistance—federal and state—in protection of forest lands from fire. Indicative, I think, of the conservation progress made in the last several decades is the marked change in attitude of large organized private industry toward fire control on their own lands. Practically all of our public land and all except some 70 million acres of privately owned forest land have organized protection. The unprotected area is being reduced at the rate of about 10 million or more acres a year and existing protection strengthened where—in still too many places—it is not strong enough. Substantial progress also is being made in creating a general public awareness of the need for aggressive fire prevention and control.

The U. S. Forest Service owes its existence, in part at least, to the efforts of private organizations interested in forest conservation. But public forestry agencies were chiefly responsible in those early days for getting forestry into the woods. Substantial private effort came later and has been most evident in the past ten years or so.

Research was another early development and again was spear-headed by public agencies, mainly federal. We have seen the growth over the years of a fine network of regional forest and range experiment stations, each with a subsidiary organization of experimental areas and work centers. One of the earliest of these research developments was the establishment at Madison, Wisconsin, of the Forest Products Laboratory, today known around the world.

Research by state forestry agencies followed, and still more recently private industry has established strong research programs. I know from personal experience that research in forestry is a long, slow process, but it is unlikely that anyone can look at the record of research accomplishment

(*Turn to page* 39)

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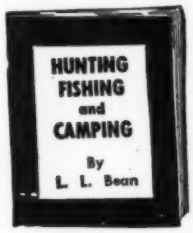

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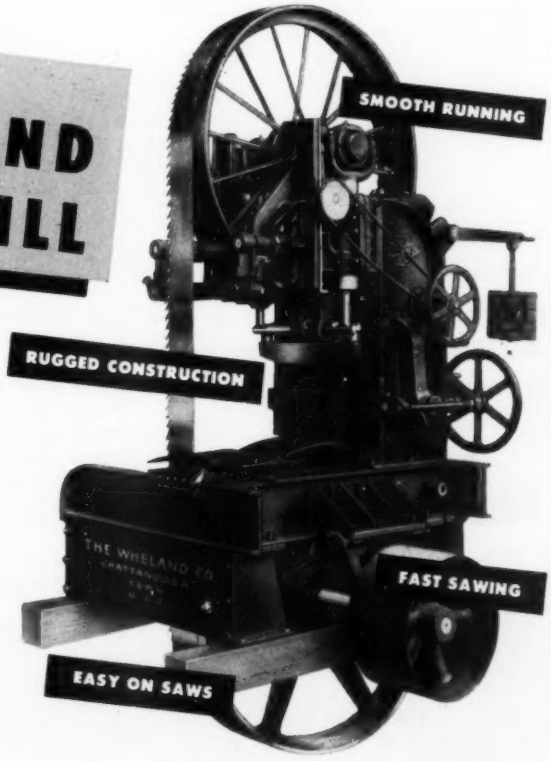

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Federal Forestry

(*From page* 37)

and not be impressed. Unquestionably we have a long way yet to go, but we also have come a long way.

Somewhere along the line, influence of the professional forestry schools began making itself felt. I recall that the nine of us in my class at forestry school used to worry about finding jobs. I remember hearing Professor Roth tell us not to worry, that we would create jobs in forestry. And so we did and so will those now in school, who, in their turn, are beginning to wonder where they will find jobs in forestry.

If you will think back with me just a quarter of a century—not a long time in forestry—you will remember how the pace began to quicken. When opportunities for logging were largely controlled by availability of drivable streams or financial ability to build railroads, the effect on the forets was often far less serious than when good roads and truck transportation opened up chances to cut timber almost everywhere and in relatively small quantities. When logging had to be done with bull teams, there was not as large an impact on the forest resource as when high speed machinery is used.

Last Sunday morning I weighed the newspaper that came to my doorstep. It tipped the scales at two pounds. Improvements in the printing press, typesetting, in news-gathering facilities, in paper making itself have given me a considerably larger newspaper than my father had at my age. Or think of what is happening in the whole field of merchandising. I burn or throw away every day more wrapping paper, bags, boxes, and milk cartons than I used to see in a week or a month when I was a boy.

In the past quarter century softwood plywood production has increased 13-fold. Lumber production jumped from 16 billion board feet a year in 1875 to 35 billion feet in 1920 and probably will be 37 billion feet in 1950.

In this same fateful quarter-century, the chestnut blight wiped out one of our most useful trees. The white pine blister rust threatened another of our best species. Floods were becoming more prevalent in some places, water shortages in others.

But there was a quickening of pace for conservation, too. Far-sighted owners of large forest properties with

(*Turn to page* 41)

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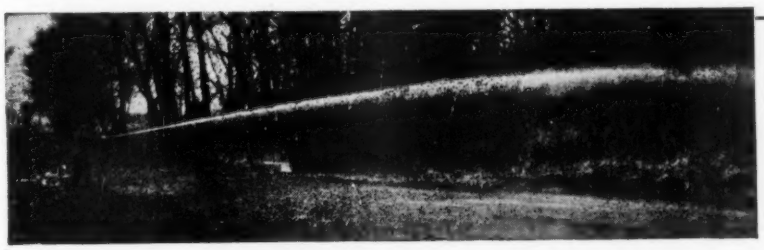

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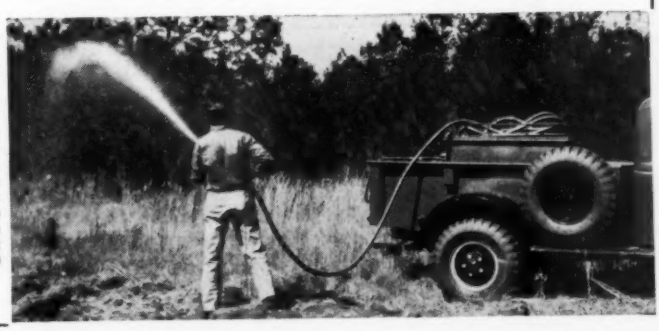

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Du Pont Seed Treating News — Statistics on plants treated with Du Pont disinfectants. Published by Retail Products Division, Semesan Section, E. I. Du Pont de Nemours & Company, Wilmington 98, Delaware.

Bulletins No. 502 and 502-2 of General Plastics Corporation—four-page and two-page leaflets, respectively describing and illustrating the use of new plastic raydomes for plant protection. Both home and garden and greenhouse models are shown, along with a description of the protection from weather and more constant temperature each gives to the plant. General Plastics Corporation, 1400 N. Washington St., Marion, Ind.

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Hardy Trees, Shrubs, Plants and Bulbs—catalogue from the Gardens of The Blue Ridge, Ashford, McDowell County, North Carolina.

Birth of a Shotgun Shell—an interesting and informative reprint containing an absorbing picture story of the long, complicated manufacturing process, ingenious machines, careful checking and testing, and unceasing research necessary to make a shotgun shell. Remington Arms Company, Inc., Bridgeport, Connecticut.

The Hydraulic Traxcavator Model HT4—pamphlet on the hydraulically operated tractor excavator with new digging power, carrying ease and dumping speed. Trackson Company, Milwaukee 1, Wisconsin.

Camping Equipment—a catalogue listing hundreds of different articles for outdoorsmen. Full equipment for campers, hunters, fishermen and mountain climbers is available from the David T. Abercrombie Company, 97 Chambers Street, New York 7, New York.

Rice Centrifugal Pumps—bulletin including the Rice 3"—15M self-priming Centrifugal Pump, as well as the 7M and 10M sizes. Rice Pump & Machine Company, Milwaukee 15, Wisconsin.

Federal Forestry Progress

(*From page* 39)

heavy investments in land and mills began to take stock of the situation. There were no new forest frontiers, so in the future, our forests would be only what we made them. Forestry was becoming good business.

Species heretofore considered unmerchantable became salable. Closer utilization became profitable. Prelogging and salvage logging came into existence. Pulp and paper mills moved south and other new opportunities developed for farmers to sell small trees. The larger forest owners were hiring foresters — and specialization in logging engineering or wood procurement was no longer a prerequisite for employment. In the space of ten years the number of consulting foresters in the Pacific Northwest increased from six to 52.

The North Carolina Forestry Association will celebrate its 40th anniversary at Raleigh on November 15 and 16. Highlight of the opening session will be a series of discussions on the theme, "Forestry Education on the March."

We can turn out 10,000 professional foresters, we can exhort forest owners to practice forestry, we can organize conservation societies, we can legislate and administrate. We can get together and tell each other how much we have done and are doing and intend to do. This kind of review is worth doing, and as a part of the process we need to see how well our actual progress in forestry has kept pace with other key developments and with the basic need for forest conservation. Progress has been made, and the pace has stepped up, too. The big question is are we going far enough, fast enough?

The bulk of our forest conservation need is on privately owned land, and by and large it is our best and most accessible forest land. True, forestry progress on large industrial holdings is generally going forward in an increasingly satisfactory manner. But 76 percent of all our commercial forest land in private ownership is not in these large holdings; it is in very small, individually-owned timber tracts.

When we made our Reappraisal Survey in 1945 only four percent of the cutting on these small properties could be classed as good in the sense of making conscious provision for future forest crops. Here is the hard core of our forestry job. If we don't make headway here—in the woods—we will not make the needed progress.

The reports of the more than 200 farm foresters scattered over the country give a rather strong indication that in this five-year period about 100,000 small forest owners did put good cutting practices into use. To be far and away on the safe side, let's double that figure. Since there are four million of these small owners, 200,000 is five percent. So if there was no back-sliding anywhere, our 1945 figure of four percent might be increased to nine percent. An increase of 200,000 would be a notable accomplishment.

I am proud of that five percent but I am not satisfied with it, because it represents only one percent a year, and there is very real doubt in my mind that there is even that much actual net progress. I just don't like to think that it will take a hundred years—even if nobody backslides—to do a job that can and should be done in a much shorter period.

Today we are taking stock—where we've been, where we are, where we're going. Seventy-five years is a long time in the life of any organization. But today let's not spend too much time looking backward. The job hasn't been finished; it is just started.

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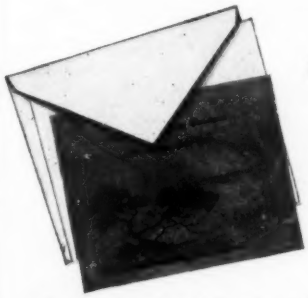

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Industry's Progress

(*From page* 19)

sawmiller could produce from his particular timber stand.

This situation is not unlike the comment made in relation to conditions affecting labor. Regardless of what industry has done during the past 30 or 40 years in the way of improved labor conditions and in correcting the errors of its predecessors, there are those who would like to make people believe that the same conditions still exist and there has been no marked improvement in either forest practice or labor relations.

Present day management cannot be blamed for either the economic or the selfish conditions which may have existed in the days of its forefathers. It is about time industry, as constituted today, becomes more vocal about its efforts in improving its forest practices and the complete utilization of the products of the forest. Trained foresters are the keystone of the industry's work, and their contributions, coupled with that of scientists in related fields, will eventually make for more timber and complete utilization of the trees which are grown.

As in all other "reform movements" progress seems slow until, through the pressure of necessity or some other reason, the movement becomes popular and then it becomes a problem to really determine who first fathered the idea. People who conceived the idea become as thick as trees in the forest—the kind of forests we all dream about.

In the building of industrial forests, however, we have really made more progress in the past 25 years than during the previous 150 years. I think one is justified in saying that more progress has been made in the last ten years than during the previous 40 years. There are a few outstanding examples of the work of certain Lake States concerns which had the courage and foresight to launch their programs for perpetuating their timber supplies early in the game. These projects are now beginning to pay off, and in the years to come will yield much greater dividends.

When you consider that population has more than doubled in 50 years and requirements have increased through new uses to a far greater extent, it behooves all of us in industry to redouble our efforts in order to meet demand. Even with the multitude of substitutes for timber, we are not keeping up with the constant-

ly increasing use of building products. In 1900, people consumed 2.2 million tons of paper and paperboard. This year, with only double the population, they will use 12 and one-half times that amount. About 30 percent of this will come from the reuse of old papers and rags, but the balance must come in the form of pulpwood from the forest.

Industry, through huge expenditures in research, has found how satisfactorily to use species which were once regarded as useless. These discoveries have extended the over-all wood supply for industry. Fortunately, these species are the ones which mature in a relatively short time, therefore making our tree growing problem for use in mechanical and chemical pulps much easier. We cannot discount the work of the scientists in research who have extended our wood supply through the utilization of more species.

I recall distinctly the predictions of Mr. Raphael Zon made nearly 40 years ago in relation to "the lowly aspen," and now, as he predicted, the aspen has become an important factor in pulpwood supply. Other such species will eventually be used in the manufacture of many of the regular grades and perhaps some new grades of pulp. This not only applies to aspen in the Lake States, but to many varieties in all parts of the country. The use of loblolly pine and various kinds of gumwood in the south are typical examples.

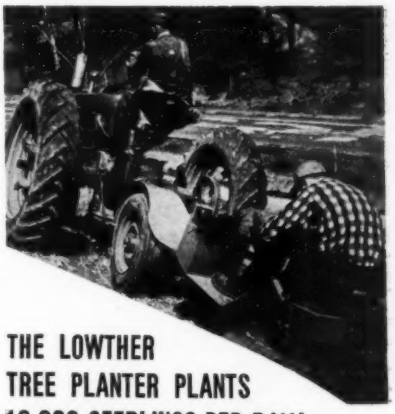
The work of the Forest Products Laboratory, coupled with that of The Institute of Paper Chemistry and many other research and educational institutions, are largely responsible for these developments. The rapid extension of industrial research laboratories will have a tremendous effect on the wood supply of the future. Forestry has become a popular issue with government agencies, industry and the general public, and with these three forces behind it I doubt if we will ever again see any lag in the prosecution of these programs.

There is no better way to create and sustain interest in any project than to emphasize the incentive. With the tremendous cost of plant investment today, plus the ever increasing cost of transportation, every industrialist knows that his future success is tied to one location and that the raw material must be produced within a restricted area. His incentive is to grow more timber within that area or fight a losing battle in a competitive situation. This is his selfish interest, but while he is growing timber for his industrial use, he also contributes to everything which goes to make up our national economy. His continuity of operation makes for employment and sustaining of all the collateral services which cater to the needs of his employees.

Through individual and joint efforts, we are making marked progress, despite wasting much time in getting started. This was only natural, for it takes a long time to change the thinking of people who, within a relatively short time, are compelled to change their thinking from a situation involving abundance to one of scarcity.

Through the efforts of trained foresters and those who were imbued with the idea of continuously renewing the forests, we have finally gotten some real action. Much credit is due those who have so tenaciously stuck to their guns in what looked like a hopeless task. This is always the history of such efforts and perhaps, measured in time, we have have done as well as might be expected.

In the future forestry program, there is a great opportunity for cooperation between the idealist and the realist, not only for the benefit of industry but for all mankind. I sincerely hope that all people will agree and follow the idea that "timber is a crop" just as God intended it to be.



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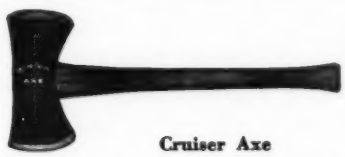

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Mr. Fred E. Hornaday, Director of Advertising
AMERICAN FORESTS Magazine
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Washington 6, D.C.

Dear Mr. Hornaday:

About the Fall advertisements. Your magazine topped my list last Spring. Taking both last Spring's advertisements the sales were about 6-times the cost of the advertisements. This is phenomenal in these days. I attribute it to your new editorial policy of the past two or three years, which has brightened your book out of all recognition: which doubtless attracts other readers as much as it does me.

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Letters

(*From page 4*)

a well-known reputation in forest managing and would be prepared to go to work immediately in close contact with the representative of the forest section of the ECA in Italy and, if desired, would be willing to put up a guaranty bond for the successful transaction of this job.

If I may suggest that you should use your good offices to get in contact with the ECA in Washington, certainly in close touch with Congressman John McSweeney and Mr. Brown, who are already informed of my plan, and try to change the method of spending the allotted forestation funds of the ECA in Italy, then I feel this would be for the good of the whole Italian population and also politically the wisest thing to do.

Otto Rosenberg
New York, New York

Attention, Residents of Ann Arbor!

I'd like to call to your attention a matter which you might, in turn, call to attenof any members whom you might have in Ann Arbor, Michigan.

At the entrance to that town, on Highway 23, just east of a Howard Johnson restaurant, there is a remarkable stand of timber—three acres or so, I'd guess—that crowns a hill and adds great beauty to the approach to the town. Building operations are already in progress right next to it. It would be a shame for it to be chopped down needlessly.

Alice R. Bensen
Assoc. Professor of English
Michigan State Formal College
Ypsilanti, Michigan

New Members in Germany

As you kindly informed us of our *bibliothek* being elected a member of The American Forestry Association, we may be permitted to convey to you our best thanks for doing so.

We feel, by this new membership, not only much pleased but also greatly honored and should not like to conclude without wishing hopefully a prosperous cooperation.

Dr. Theodore Schmucker
Dr. Kurt Mantel
George August University
Göttingen, Germany

AUTHORS

LARRY COOK (*New Forests for Ohio*) is executive vice-president of the Ohio Reclamation Association. **GEORGE H. HEPTING AND GEORGE M. JEMISON** (*A Cure for Littleleaf Disease?*) are, respectively, senior pathologist with the Division of Forest Pathology and Director, Northern Rocky Mountain Forest and Range Experiment Station, Asheville, North Carolina. **MARTHA SEY HUNTINGTON** (*Wife of a Tropical Forester*) lives with her son on Long Island, New York, while her forester husband travels in Latin America.

State Forestry Progress

(*From page* 19)

Thirteen years after the Weeks Law, another boon to state forestry was passed by Congress. Cooperation again was the keynote behind the Clarke-McNary Law, which broadened the scope of federal aid in the fields of forest fire prevention and suppression, distribution of forest planting stock, and farm forest extension activities. At the close of the 1920's, New York instigated a reforestation program with an acquisition policy for the state forests, whereby land which had been proved too poor for agriculture could be acquired by the state. And, as is the case in so many state forests — they start with land that nobody else wants.

The work of the Civilian Conservation Corps, started in 1933, was a great asset to forestry in the states. Recreational facilities were built by these camps, fire breaks, access roads and trails were constructed, plantations were established, and thousands of acres of timberland were improved.

There were two important national forestry laws passed in the middle thirties. One has been used actively by the states — the Norris-Doxey Cooperative Farm Forestry Law took sound, practical forestry into the farmer's woodlot. Farm forestry and reforestation are established practices in many of our states, and the acreage which these foresters have been consulted on is steadily growing to a most impressive figure. The other is the Fulmer Law which authorized the federal government to cooperate with the states in stimulating the acquisition, development, and administration of state forests; unfortunately, no appropriations have ever been made.

Finally, we come to the past decade of state forestry progress. During this period there was increasing realization that more positive action would be needed to maintain our natural heritage of forests, waters, and soil as a future investment for this and coming generations. Citizens felt very strongly, then and now, that these measures would be enacted and administered locally. Thirteen states enacted laws providing for some form of regulation of cutting practices on private lands — for example, Oregon, out west, Maryland in the east, Mississippi in the south and New Hampshire in the north.

In the past three years, three federal laws have been signed to aid forestry in the states. The Forest Pest Control Law gives federal cooperation against forest insects and disease. Last year, there was the Clarke-McNary Revision, and just this past month President Truman okayed the Cooperative Forest Management Act which greatly expands the state foresters' latitude of the former Norris-Doxey services. Under this act technical services of the project foresters may be provided to all forest owners.

Aside from the rapid rise of other phases of state forestry activity, let us take final stock of the number of state forests and state forest nurseries. Today 822 state forests have risen from the humble beginning of one forest preserve in New York 65 years ago. These forests will continue to stand out as fine examples of the benefits derived from good management and fire protection.

Closely allied with management is the reforestation movement which has greatly increased in momentum with the advent of the mechanical tree planter. Today, 41 states grow nearly 400 million young trees in 85 nurseries—a most enviable record in progress. Forest management on private lands has been augmented considerably by the employment of over 200 farm foresters under the Norris-Doxey Act, and this field has been broadened even more by the recent Cooperative Forest Management Act.

Likewise, protection from fire has progressed to a point of high commendation to all the men and agencies concerned. In 1919 only 110 million acres were under protection out of a possible 600 million acres, while today there are only 70 million acres to go. In this past year alone, nearly 18 million acres, principally in the South, have been brought under protection.

The states have indeed come a long way since the first forestry commission was established in Wisconsin back in 1867. In spots, the road has been rough, but with support from organizations like The American Forestry Association, we are gradually smoothing it out. The average citizen finally is becoming aware of forest conservation, what it means to him and what needs to be done about it. Likewise, state forestry is getting the backing which long has been its due; and with this assistance, we will continue to preach the gospel and carry the practice of good forest conservation to all forested lands within our jurisdiction.

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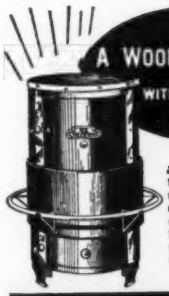

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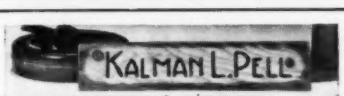

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September and October have been busy months around your AFA headquarters, what with intense preparations for the 75th anniversary issue of *American Forests* and the anniversary meeting at Eagle River, Wisconsin. Both projects have now been successfully completed and have drawn words of praise from many AFA members.

Earlier in September we met with the Council of State Forestry Association Executives in New Hampshire, an organization which AFA helped to create last year. Representatives from nine state associations were present, together with a number of guests who are working with the state men.

William Laybourne, of the Ohio Forestry Association, was elected chairman to serve with John Ferran of Louisiana, vice-chairman, and Larry Rathbun of New Hampshire, secretary. The group passed a resolution asking AFA to provide a field man to counsel with existing state organizations and to serve in an advisory capacity in setting up new associations. This matter, which the Board will consider, will largely depend on obtaining adequate funds to finance such a man and his travel costs.

We are now compiling for the states a brochure of by-laws and membership materials and have sent them packets from the United States Chamber of Commerce on methods of handling organizations, finances and membership.

At Salt Lake City, late in September, we attended and spoke before the Association of State Foresters at their annual meeting and invited the group, along with the members of their state forestry boards and commissions, to consider a joint meeting with AFA in 1951.

The state foresters elected DeWitt Nelson of California as their chairman to serve with Fred Lang of Arkansas, vice-chairman, and Everett Lee, Colorado, secretary-treasurer. Joe Kaylor of Maryland and Clarence Proutt of Minnesota were named on the executive committee.

During the course of this very pleasant occasion we had the opportunity for a specially conducted tour of a watershed management area in the mountains adjacent to Salt Lake City. Efficiently guided by A. R. Croft and Joe Hessel of the U. S. Forest Service, and accompanied by W. S. Rosecrans of California and H. C. Buckingham of Maryland, we spent a pleasant day in the high, clear mountains overlooking Salt Lake City and saw watershed management practices operated by the Forest Service. A story on this project will appear in a later issue of *American Forests*.

On the first of October we were at Knoxville, Tennessee, with the Natural Resources Council, of which AFA and some 30 other private organizations interested in conservation are members. Dr. Paul B. Sears presided as chairman of the conference. He later turned over the chair to Henry Clepper, executive secretary of the Society of American Foresters, who will serve as chairman.

The Council is working on a suggested land use platform and statement of policy which can be endorsed by as many of the member organizations as possible and presented to the

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American people through them. A number of preliminary drafts have already been prepared and revised. The member organizations have found that getting together on a national land use policy is not an easy task, but the challenge is one of the greatest to come before these various organizations.

Mere words cannot describe the completely successful 75th anniversary meeting of The American Forestry Association at Eagle River, Wisconsin in October. Every event went off like clockwork. We were blessed with three perfect Indian summer days. The whole program speaks most highly for the great amount of help received from the many organizations, agencies and industries in Wisconsin, for our speakers who so graciously contributed their time and for the extremely hospitable people of Eagle River, a small community of about 1400, who went all out to make everyone feel at home.

It set a precedent for meetings in that it was largely made up of tours designed with the objective viewpoint of seeing and learning about resource management in northern Wisconsin.

Among the many enthusiastic AFA members who attended, none had a better time than Miss Bogardus Brodt, who is in her 70's and came all the way from Berkeley, California by air.

Among the serious notes struck at the banquet was adoption of the following resolution:

"The directors, the staff, and the members of The American Forestry Association on the occasion of its 75th anniversary meeting adopt a simple expression of thanks and affirmation of faith to mark this historic event:

"To the friendly folk of Eagle River, to the hospitable people and industries of northern Wisconsin, to the state and federal services, and to our speakers, who have worked so long and diligently to make this an outstanding meeting, we extend our sincere thanks and our deepest gratitude. We recognize especially the efficient service of the general committee consisting of Folke Becker, D. C. Everest, Ernest Swift, M. N. Taylor, and Vico Isola, and the loyal staff of Trees for Tomorrow, Inc.

"We believe that the things we have seen here, the ideas we have gained, the inspiration we have received from industrial, state, and federal agencies working together with private citizens, will be carried back to our towns and communities throughout the land and will become the springboard for increasingly vigorous land management effort in the days and years ahead."

We welcome this month two new state forestry association executives, Coleman Rogers, who has taken over the reins as managing director of the Florida Forest and Park Association, and Allan H. Wood, who has been appointed executive director of the Pennsylvania Forestry Association during Sam Custer's absence on military service.

New life members whom we welcome to AFA include: the Albemarle Paper Manufacturing Company of Virginia, George Armstrong of Pennsylvania, Lloyd R. Brown of California, Dr. Madelaine R. Brown of Massachusetts, Allen E. Foster of New York City, G. B. Gunlogson of Wisconsin, J. M. Hamer Lumber Company, Incorporated, of West Virginia, Mrs. Roland T. De Hellenbranth of New Jersey, Dr. R. C. Hildreth of Michigan, Lester L. Levy of California, Mrs. O. H. Lexau of Tennessee, the Lindsay Wire Weaving Company of Ohio, George W. Peake of Georgia, H. S. Peck of Wisconsin, C. F. Rehnborg of California, Mrs. Minnie Schultheis of New York, Henry O. Tilton of Massachusetts and Peter Wyckoff of Indiana.

Of special interest is a new book by Bernard Frank and Anthony Netboy, *Water, Land, and People*, just off the press. The authors used material from the book to write three articles which appeared in the January, February and March issues of *American Forests*. This vital publication gives a dramatic picturization of the nation's serious water problems. Loss of topsoil, ugly lines of erosion, terrifying floods, silt in rivers and reservoirs and the lowering water table are made more graphic with specific local examples. The book ends with a series of recommendations for their cure. S.L.F.

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Walter E. Humphrey—Texas, Editor, *Fort Worth Press*.

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Hon. Leslie A. Miller—Wyoming, Chairman, Committee on Natural Resources Commission on Organization of the Executive Branch of the Government.

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Editorial

"WHAT IS PAST IS PROLOGUE"

Carved in the granite east portal to the federal Archives building in the nation's capital are these thought-provoking words by William Shakespeare: "What is Past is Prologue." R. E. McArdle, competent assistant chief of the U. S. Forest Service, quoted them during his interesting speech at the AFA's 75th Anniversary meeting in Wisconsin October 10 (see page 18) in recommending that we "not spend too much time looking backward."

Strangely, this was precisely the premise which guided the planning of AFA's 1950 meeting. Certainly a minimum of time was spent in historical recitation. The decision to abandon for the most part the cloistered smoke-filled halls of antiquity in favor of using comfortable buses as "classrooms" for a series of expertly guided grass-roots tours was a bold new venture in itself.

Seventy-five years ago it would have been sacrilege for such meetings to deviate from the established pattern of long speeches, weighty and profound speeches—and more speeches. But neither was it the custom for people to forsake the horse and buggy in favor of a sleek, streamlined automobile. It was the AFA thinking that meetings, too, should keep pace with the changing times. It would be incongruous, indeed, to attempt to promote present-day and future conservation programs at an 1875-style meeting.

In retrospect, it has been gratifying to learn that this experiment with a streamlined conservation caravan type of meeting met with such spontaneous and whole-hearted acclaim. Scores of the enthusiastic "patients" who submitted to this dosage of conservation know-how have marveled at the effectiveness of the medicine gently administered, as it was, in a relaxing, informal and friendly, down-to-earth manner.

In a large part, what AFA members and their guests saw in northern Wisconsin was the result of what is past—of distant historical decisions, of policies initiated years ago, of changing economic factors and other trends of a new era. Reflected, too, were the vision and leadership of men who in their time must have felt they were fighting for a lost cause. All had their impact, all made their mark on the unfolding drama of better forestry and land use —1950 model.

Present-day land use activities are the culminating result of all this, tempered by experience, research and hard-boiled necessity—the mother of invention. And, perhaps, too, the 1950 look at northern Wisconsin was a sneak preview of things destined to have their counterpart in many other sections of the nation.

Participants in the tours were impressed with the accomplishments which were being obtained through the expedient of harmonious cooperation between private interests and federal and state government agencies. Certainly this pattern is worthy of immediate duplication on a nationwide basis, both in top policy and administration levels and in local action phases.

Glimpses of things to come were evident at many points throughout the tours. There was the sample of Torula yeast, initially a pilot plant product of the Lake States Yeast Plant at Rhinelander. It is made from sulphite paper liquor waste which formerly was dumped into the Wisconsin River and created a serious pollution problem. Now the new product, rich in vitamin B complex and suitable for human and animal consumption, is the basis of a new industry, new jobs, new payrolls. The ever-increasing tempo of research offers exciting possibilities of many other new products which may be derived from trees.

There were also the demonstrations of new mechanical devices recently developed and being put into use to protect, replant and utilize the forests. The speed of radio for communications, the effectiveness of the airplane for fire detection and as a fire-fighting tool, the ease with which huge new plows carve out fire lines and the workload possible to undertake with late model mechanical tree planters all made indelible impressions. A new portable wood chipper capable of grinding up species formerly dismissed as weed trees makes it possible to develop more economical forest improvement practices and reduce inroads on more valuable species. A new era of mechanical forestry is apparent.

The approach to the small woodland owner problem, as exemplified by the industries-financed Trees for Tomorrow program of education and assistance, also provided a splendid object lesson. Since one of the major forestry problems today is a means of obtaining better cutting practices on the smaller parcels of privately owned land, the Wisconsin approach may well be worthy of application in other areas.

What is past set the stage for today and for the future. Participants in AFA's conservation caravan meeting paused to acknowledge this, but they were more interested in looking ahead. Forestry in all its 1950 ramifications is a far cry from that of 1875 —even that of ten years ago. The tempo is increasing, and the AFA intends to keep abreast of progress and share in guiding its destiny.

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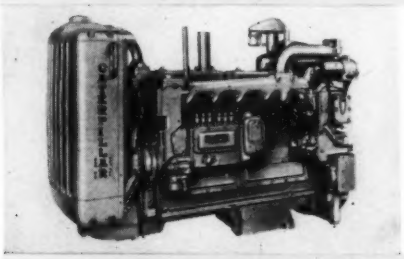

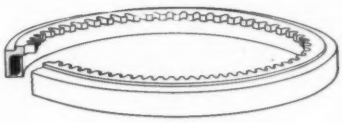

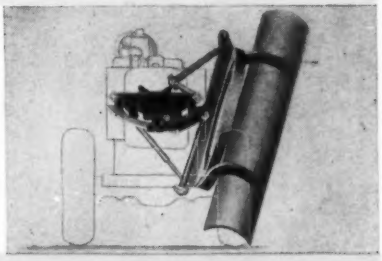

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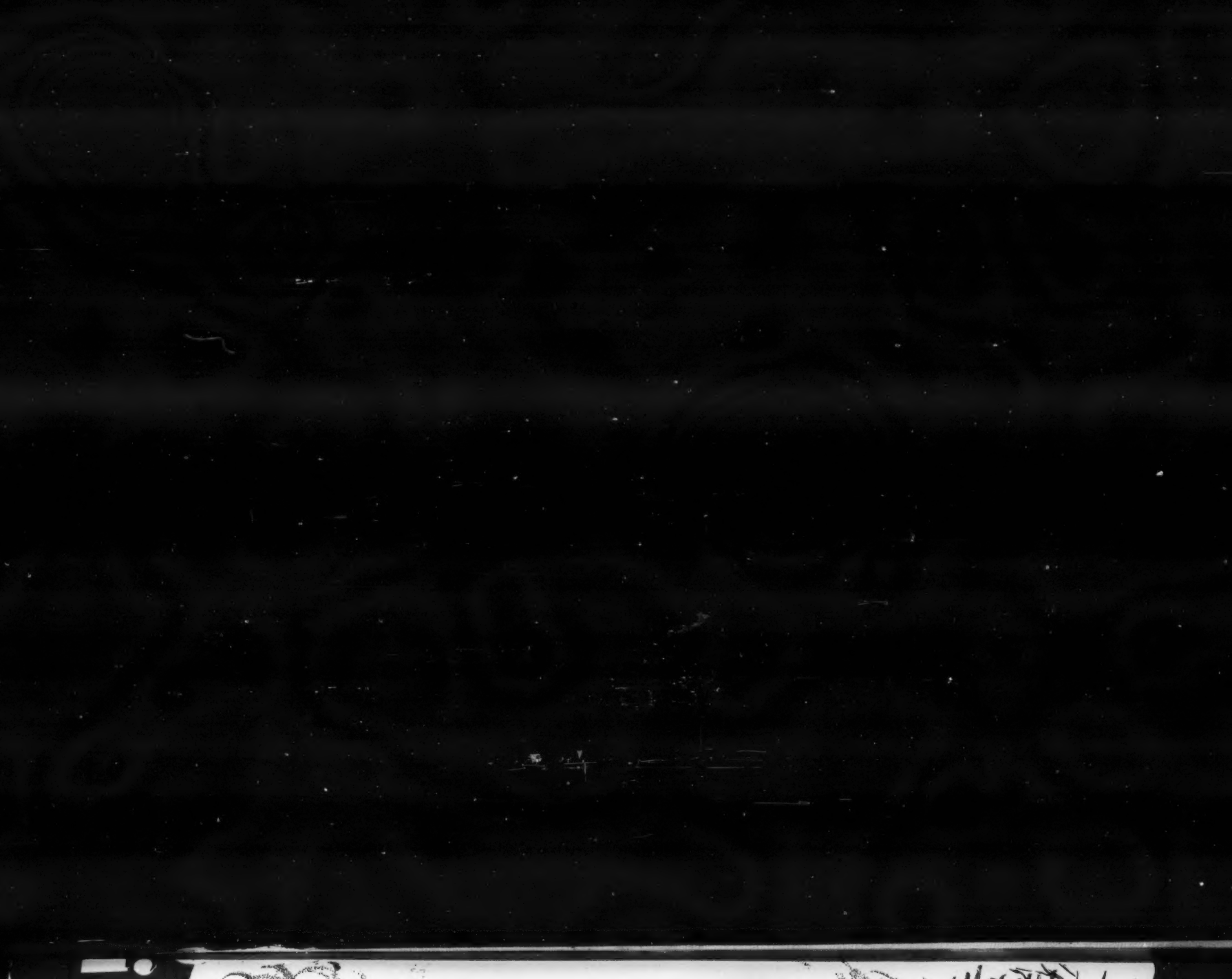
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